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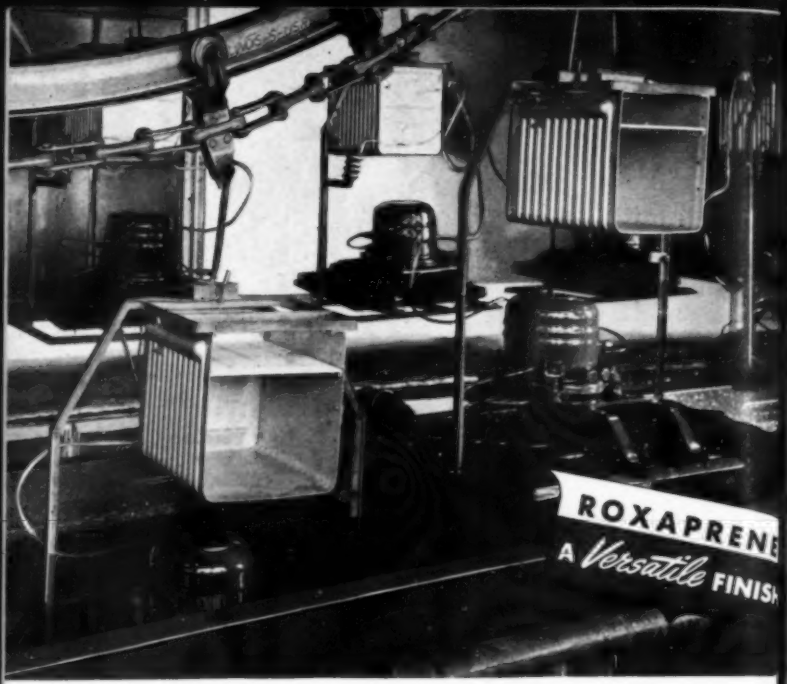

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TWENTY-THIRD YEAR OF PUBLICATION

Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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No Business Recession, if—Some economists predict no recession for business—that is not real soon. Others reverse this opinion. Every now and then you will meet a man on the street who voices an opinion based purely on his own personal observation.

Walter D. Fuller, president of the National Publishers Association hit the nail right on the head when he said that a recession can be avoided if the American people will seek wider understanding, greater tolerance, be less selfish and work harder. The emphasis should be on the *work harder* for if you work hard enough, you won't have time for selfishness and intolerance—and through work one gains understanding.

* * *

Graduate Foremen will soon become as well known in industry as graduate engineers. A. C. Croft, president of the National Foremen's Institute, in a statement to the New York Times, gave some interesting figures.

"Thirty per cent of all foremen are college trained, many with degrees, and 45% are high school graduates".

Through group and individual company training programs, the foreman is informed of company wide sales, operating and personnel problems. He is acquainted with industrial and human relations, psychology of handling employee grievances, wage incentive and merit rating systems. He knows the mechanical and technical details of his job. Through intelligent training and development the foreman has become more valuable to industry and he has more confidence in himself. Through greater knowledge and more understanding he keeps up and increases production by brain instead of sweat and brawn.

* * *

Utility furniture, rightly named, designed by Edward J. Wormley was recently displayed at a New York store. According to the New York Times, "Most of the designs have two or three possible uses and should look at home in any room except the kitchen." *A feature of this line is that the backs are constructed of wood equal in quality and appearance to the fronts and tops, and they are finished just as carefully.* This makes it possible to place these pieces anyhere in the room instead of always against a wall.

Another feature is patented aluminum legs which permit separate adjustment for height to compensate for uneven floors; no more putting a wedge or cardboard or folded paper under a furniture leg to prevent the piece from rocking

* * *

More Radios—Records in radio production, will be smashed in '47, according to spokesmen for leading manufacturers. During 1946 approximately 15 million sets were

(Continued on page 10)

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produced, which was 1½ million more than 1941, the previous banner year. Manufacturers' estimate for 1947 is 14 to 18 million sets. That means an equal number of cabinets ranging from plastic and wood midgets to combination radio and record-player consoles. A lot of materials and a lot of work for a lot of people—if we can just get them to do it.

* * *

Future Steel?—"The American steel industry, now destined to be the greatest supplier of steel for the world market for many years, faces real shortages of actual iron ore within a period too short to be comfortable," according to C. M. White, president of Republic Steel Corp. White warns that the problem of beneficiating America's vast reserves of potential ores must be faced.

"It is unlikely any great new deposits of high-grade ore will be uncovered in either the U. S. or Western Europe", he says,. "The steel industry of the United States, supplemented by that of Great Britain, must be the main source of supply for the future needs of much of the world for many years to come.

"The known supply of actual ore is being exhausted much more rapidly in the U. S. than in the rest of the world."

* * *

Aluminum cars on streamlined passenger trains are as common now as aluminum planes. Many of the railroads are following suit with aluminum box cars and refrigerator cars. The tare weight on a standard 40-ft. steel box car is approximately 45,300-lbs. The same size car in aluminum weighs 35,300-lbs. Savings in weight reduces operating costs by increasing

the pay load. The Reynolds Metals Co. has designed a refrigerator car in aluminum which is said to be more efficient, as well as economical in the consumption of ice, due to aluminum which reflects 95% of the radiant heat. Manufacturers of aluminum cars state that they are as strong as other cars and last as long.

* * *

New Passenger Cars—That fine vacation trip next summer may be more enjoyable if you go by train, especially if you have an opportunity to ride in one of the new vista-dome cars which has a seating capacity of 24 persons in an elevated deck enclosed in a blister similar to that of a bomber plane. The lower level section seats 36. Budd Company, Philadelphia, has completed the preliminary work. Several railroads have placed orders for the new type cars.

* * *

Beware of Benzene—Dr. Donald Hunter, physician in charge of the Department of Research in Industrial Medicine of the British Medical Research Council writing in Occupational Medicine, published by the American Medical Association lists benzene as one of the chief offenders. He says "Evidence that chronic exposure to benzene produces leukemia is still incomplete, but it is accumulating rapidly and to a volume which commands serious consideration." Benzene poisoning is dangerous. The death rate is as high as 10%. Of course, everyone exposed to these fumes is not susceptable; but why take chances? There are other solvents available, many of them harmless substitutes.

The physician also warns of industrial diseases to the lungs from handling of manganese, cadmium,

(Continued on page 126)

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PEEL OFF
PAINT OVERSPRAY

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A revolutionary research aircraft, the Navy's stub-winged, projectile-like D-558 "Skystreak" was designed by Douglas Aircraft's El Segundo engineers to fly faster than ever before. It will dart across the skies in a race with the speed of sound. Notice sleekness and reflectivity of its finished surface.

Special Smooth Finish On Jet Airplane

By GILBERT C. CLOSE

DEVELOPMENT of the latest super-speed jet-propelled airplanes has created several new finishing problems and has expanded old problems in conjunction with such finish characteristics as resistance to heat, flexibility, hardness, and resistance to thermal shock. These airplanes can climb from ground level to the sub-zero cold of stratospheric altitudes in a few minutes; they travel at speeds that make striking rain drops akin to the impact of solid pellets; and they generate a heat caused by air-skin friction. As a result they demand more of a finish than any airplane hitherto designed.

According to E. D. Mitchell, finish engineer at Douglas Aircraft Co.'s El Segundo plant, months of experimental and test work preceded adoption of the finish system now used on the newly released Douglas "Skystreak," a jet-propelled airplane designed to explore actual flight characteristics in the transonic velocity ranges. Every available research facility was pressed into use to make certain that the finish employed would meet all known conditions, and any new conditions which might occur when travel speeds approached the supersonic (faster than sound waves) range.

Finish Flexibility and Heat Resistance

Finish flexibility was necessary. The violent buffeting caused by shock waves at transonic speeds, thereby creating high amplitude

vibrations throughout the airplane, would cause a brittle finish to fail immediately. Metal contraction and expansion, caused by rapidly changing temperatures, would have the same effect. Heat resistance was necessary to offset the heat caused by air-skin friction, and internal heat radiated from the jet tube of the power plant. Impact resistance and hardness are required to withstand the abrasive action of rain drops, snow and sleet particles during high speed flight.

The fuselage shell and interior sheet metal components of the Skystreak are made of magnesium; the wings and flight control surfaces are of high-strength 75S aluminum alloy. All magnesium was pre-treated, using the Dow No. 7 sealed chrome pickle process. Additional protection is afforded by two coats of zinc chromate primer and a coat of aluminized spar varnish. Longerons, trusses, and other interior magnesium components located in sections adjacent to the jet tube were given a fourth coating of white pigmented silicone enamel to increase their heat resistance.

The chrome pickled magnesium exteriors were given two coats of zinc chromate primer, while the chromodized aluminum exteriors were given one coat of the same material. Priming was followed by fairing and smoothing all seams with a specially formulated glazing putty compounded to give maximum flexibility at temperature extremes.

Another special product, a cellulose-type airfoil surfacer compounded specifically for this job, was then applied over the entire fuselage and on wing surfaces back to the center spar line. This surfacer was used chiefly to

Close-up portion of finished surface on speedy jet-propelled "Skystreak."

eliminate "cans" and other surface irregularities that would interfere with ærodynamic performance. A second coat of surfacer was applied over all countersunk screw heads and seams; then the entire coating was thoroughly sanded.

Two finish coats of cellulose nitrate lacquer were applied, with eight hours of drying time allowed between coats. Following the second coat, a final 24-hour drying period elapsed before polishing the surface with a machine buffer and fine polishing compound. The net result is a hard but flexible, high-gloss, extremely smooth surface.

It is interesting to note that recent engineering studies minimize the importance of smoothness, insofar as it affects ærodynamic performance. What is termed a "boundry layer" of air clings to the airfoil surfaces, thus reducing friction to that between

static and moving particles of air. It is more important that the finish employed provide sufficient "bulk" or thickness to fill in and smooth all dents or other surface irregularities that are bound to occur during manufacturing operations. Of course, this is theoretical reasoning and may be disapproved during subsequent flight tests at speeds ranging upward from sonic (sound wave) velocities.

Finishing Bed Springs

BY P. C. BARDIN

SPRAY COATING of bed springs and other items made up of wire or comparatively small diameter rods is out of the question from the standpoint of cost, both as to loss of material in overspray and in time to properly coat all surfaces.

It has been found that dipping is the more logical method of finishing such items. Due to the shape and construction of bed springs and other similar products, dip coating is not as simple as it would normally be on products of more solid surface nature.

If you have had dip coating experience on other products, it would be better to forget all of it and start out fresh. The ordinary care of dip tanks, the material, filtering of material, viscosity control and other factors will not be sufficient to produce good results on springs and other open-work products.

To produce an acceptable finish on those products, it is necessary to experiment on the method of dipping, particularly in regard to the position of the product when it enters and leaves the dip tank. Also, the speed at which it enters and leaves the material will determine whether or not you will have sufficient coverage, reflows or runs, or webbing of the material between the wires.

Other important factors to be considered in preventing these faults are the filtering of finishing material, determination of viscosity values, and a positive means of maintaining the proper viscosity level through addition of solvent, and the thorough mixing of solvents added.

The temperature of the room in which dipping is done and the temperature of the product are contributing factors in producing a good finish. Of course, strict cleanliness of the room, tanks and drying ovens is necessary to get an acceptable coating, even on items having comparatively small surfaces.

All of the experimenting on position, speed, viscosity, etc., will not prevent a certain amount of finishing material from accumulating in the form of a clinging drop or fat edge at the lowest point of the spring or other item. After leaving the dip tank and after draining, the quantity of material thus collected may be controlled and held at a minimum through proper positioning of the article, viscosity of the material, etc., but the remaining minimum quantity which collects in the form of a drop will have to be removed by hand brushing or by electrostatic detearing.

In an electrostatic detearing setup, the freshly coated springs should pass over the charged grid at a distance of 8-in. to 10-in. It has been determined that the maximum strength of the electrostatic field lies within these limits and

vibrations throughout the airplane, would cause a brittle finish to fail immediately. Metal contraction and expansion, caused by rapidly changing temperatures, would have the same effect. Heat resistance was necessary to offset the heat caused by air-skin friction, and internal heat radiated from the jet tube of the power plant. Impact resistance and hardness are required to withstand the abrasive action of rain drops, snow and sleet particles during high speed flight.

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that the product is far enough removed to prevent any electrical arcing across the field between the charged grid and the product which is grounded by the conveyor or other means of suspension.

In connection with the use of electrostatic detearing grids it is necessary to provide adequate means of fire prevention. If an electrical arc should flash across the field it could ignite any solvent vapors that might be concentrated around the product. One means of removing this fire danger is to install an exhaust fan over the grid and maintain an air velocity of about 100-ft. per minute, to pull all free solvent vapors away from the area.

There are no set rules for determining the best position for a product to enter and leave the dip tank, nor the best speed for the operation to produce the desired results. Perhaps the best way to approach the problem is to call in one or more of the finish material supplier's engineers — men who know how the material is formulated; then experiment on position, speed and viscosity. They can also suggest a positive means of viscosity control. To obtain a good finish requires study, planning, knowledge and patience, but after the process is finally developed and strictly adhered to, it should give trouble-free results.

Striking new labels for Sherwin-Williams complete industrial line of lacquers and enamels stole the show when they were introduced for the first time to the Industrial Zone Managers of the company at a recent meeting in Cleveland. Vern Pratt, left, Industrial Technical representative at Indiana, indicates his approval to J. R. Stevenson, Gulf States Industrial manager, and D. S. Shimp, Southeastern Industrial Manager with headquarters in Atlanta, Ga. The label is brown on top with yellow and white lettering, and red on the bottom. A white line separates the two colors. Cutout box is yellow with black lettering.

Clean Rinsing After Metal Cleaning

By L. W. COLLINS

Specialist, Metal Section
Oakite Products, Inc.

TOO MUCH emphasis cannot be attached to the necessity of proper rinsing after cleaning operations. This principle is clearly demonstrated when you wash your hands. You can use all the soap you want, but the dirt, although loosened by the cleaning action of the soap and the mechanical rubbing of one hand upon the other, doesn't truly come off, and your hands don't feel really clean until you rinse them in fresh, clean water.

While the choice of a well engineered cleaning material is of primary importance, the field records of technical service representatives bulge with accounts of cleaning problems which have been solved through the simple means of analyzing the problem in the light of the rinse and in recommending proper and adequate facilities.

Causes of Poor Rinsing— And the Final Results

A wide variety of factors and combinations of factors have been found responsible for poor rinsing which has subsequently caused failures in pickling, phosphate coating and organic finishing. Some of those causes of poor rinsing are as follows: Rinse tanks may be too small, or they may be improperly constructed so that contamination is inevitable. Waste water handling facilities may be under-sized for the volume of the supply. Cases are many where cold water was used when a hot rinse was necessary and vice versa. Still tank rinsing is inadequate where a running rinse is required. Running rinses won't work where spray rinses are indicated. Plain spray rinses fall down if air-water rinses are demanded. Too short a rinsing time in the cleaning cycle is also a serious factor and various combinations of the foregoing frequently contribute to rinsing difficulties.

Mechanization of cleaning cycles is increasing the necessity of insuring soundly engineered rinsing conditions in production. Most of the equipment now being installed shows the effect of war-time thinking and engineering along these lines. Gradually, the experience gained from small scale operations was applied to large operations, such as those employed by large munitions and aircraft plants.

A typical example of the effects of poor rinsing was recently encountered in a repair and maintenance shop of a vending machine service company. Part of the equipment of this plant is a series of three tanks in which pressed steel vending machine cabinets are stripped of old lacquer and phosphate-coated, prior to refinishing. The operator complained that the steel cabinets were picking up a heavy scaly residue in the phosphating solution. *(To page 36)*

Reprinted from Oakite News Service.

A study of the problem showed that the stripping material—a very strong alkali having a high pH—had been carried over, as was to be expected, into the rinse tank. However, as the rinse water was rarely changed, the alkalinity of the rinse had built up to a high pH value. Consequently, the phosphating solution, being a comparatively mild acid, had become completely neutralized by the "carry-over" of the alkali from the contaminated rinse tank. As was to be expected, the products of the reaction between the stripping material and the acid of the phosphating solution were being deposited on the surface of the work.

Practical Remedy Suggested by Service Representative

A competent technical service representative suggested dumping and flushing both the phosphating and the rinse tanks, and providing the rinse tank with a fresh water supply at one end and a dam-type overflow at the other end.

When these simple and economical improvements had been installed, and the rinse tank had been refilled and allowed to overflow continuously, excellent cleaning was achieved. The phosphating tank was recharged and gave perfect results. The solution, moreover, lasted much longer than formerly, when it was constantly being neutralized by alkali from the contaminated rinse.

The running rinse can be further improved by the installation of a perforated, horizontal pipe at the water level, opposite the dam-type overflow. This pipe is capped at one end and connected with the water supply line at the other. A series of 3/64-in. holes is drilled at intervals along its length, at the approximate water level, and it is so located and adjusted as to sweep the surface of the water toward the overflow when the supply water is turned on at a conveniently placed valve. A rolling motion of the water towards the overflow is thus set up. To prevent the suspension of soils in the center of the tank, a pipe from the supply is carried to the bottom of the tank diagonally opposite the overflow. The output of the pipe is directed from the bottom through the center of the tank toward the overflow dam.

Spray Rinsing Has Desirable Features

Spray rinsing is coming into increased favor as a result of greater speed of operations especially on mechanized equipment. Spray rinsing is done in a tank-like chamber of suitable size, around the sides of which, at several levels, is a series of manifold pipes equipped with nozzles or jets which direct clean water, under pressure, on any work placed in the tank when the control valve is open.

Oftentimes these valves are so placed and designed that they can be opened by pressure of the operator's foot, while other tanks are provided with work rests and a hood. The hinge mechanism of the hood is so designed that, when it is in fully lowered position, the water spray is automatically turned on. Specially constructed spray rinse tanks, with water controlling hoods or foot valves, are now being marketed commercially.

Further refinement of spray rinsing is that type of tank which incorporates the injection of compressed air into the water nozzle, increasing the velocity of the sprays and expanding the bubbles of water. As is to be expected, forced spray or racks of parts frequently necessitates some rede-

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signing of the work holders to eliminate chance of the blast knocking parts out of position.

Technical service representatives are always available for consultation on matters pertaining to surface preparation prior to finishing operations, and are well equipped with information concerning the design and installation of proper rinsing facilities to fit the needs of each product and scale of operations.

Once the proper metal cleaner has been selected for a given operation, it will consistenly loosen soil for a long period of time. The rinse carries the loosened soil away. Cleaning is thus a 2-step cycle in a given chain of operations. Careful planning of rinsing facilities is the only safe assurance of success in washing and cleaning metal surfaces to be finished.

Finding a Man in the Factory Quickly

REFERRING to an editorial under the above title, as published in March issue (p. 130-131) here is our experience along this line:

During the war we ran into the difficulty of locating key men in our plant quickly, and were unable to get any of the usual types of systems invented for locating an individual at once. We had extension telephones, one at the desk in each department, and it was customary to ring each department in turn, wait for the phone to be answered by someone there —who frequently had to drop the job in hand to answer the summons—only to learn that the man sought was elsewhere.

We solved the problem by using the plant flagstaff which was near the office and visible from factory windows. In addition to the halliard which carried the American flag, we installed a second line, running only half way up the mast. Normally this line was bare, but when one of the executives was wanted, the signal flag which stood for his initial in the International Code was given to the office boy, and run up the mast. Where two executives happened to have the same initial for surname, the second man was assigned an arbitrary call symbol.

It quickly became a habit for executives to check the mast as they passed windows opening toward the courtyard, and also for workers to observe the pole without taking time from their work. They would pass the word to the man wanted; then he would call the office from the nearest department phone to check on the call.

Later we improved on the system by making two-flag flies instead of just using a single one indicating the initial of the man wanted. The second flag indicated the department where he was wanted. For instance, the letter "S", followed by the flag for "I" meant that I was wanted in final inspection. If the "S" was flown alone, an office call was indicated.

At first, there was a tendency on the part of some workers to waste time watching the pole, in the hope of gaining some modicum of recognition for being able to tell one of the executives he was wanted; but after the novelty wore off, and observation of the mast became automatic, we figured that an average of five minutes was saved on each summons, plus whatever gain was obtained when the phone to the department wanting the supervisor happened to be busy. *(To page 40)*

heat tests that mean something

and can be measured accurately for results.
LACQUERS, SEALERS, PRIMERS, ENAMELS—
Every finishing material under the STILLE-YOUNG brand must do the job it is made for.
Have you a tough problem?
Perhaps we can help you on it.

STILLE-YOUNG
CHICAGO
LACQUERS • FILLERS • STAINS • ENAMELS • PAINTS

Just recently, while visiting a refinery, I noticed that the signal flag system was in use there, supplementing the audible signal and serving to catch men who happened to be in the yard, far from the signal stations. The manager pointed out the flags, stating that he had picked up the idea from our little plant—so it must work, sometimes.—ELTON STERRETT.

Furniture Design

WHEN A SUITE or a piece of furniture is developed wholly to sell at a low price, there is seldom enough consideration given to its functional end use, and to the importance of its design and color. The result is usually an unbalanced product so far as design, color and end use are concerned.

When no consideration is given to the importance of design and color, the manufacturer of the merchandise not only creates a definite sales resistance but causes customers to become dissatisfied.

A properly trained, imaginative and alert foreman finisher, by cooperating with the furniture designer, can be of great value in producing a color that will be in keeping with the design of the product and its functional end use.—H. W. CHESTER.

Sterling Tool Products Co. Will Have New Plant

Sterling Tool Products Co., Chicago, manufacturer of portable sanding machines, has started construction of a new plant which, when completed, will triple its present facilities. John C. Cromelin, leading industrial architect, prepared plans for the new project.

Sterling purchased 187,000-sq. ft. on the southeast corner of Hawthorne and Armitage Avenues in Melrose Park, Ill., just west of the Chicago city limits. The one-story combined factory and office will have 95,000-sq. ft. of floor space. The first unit of 45,000-sq. ft. is being built now, and the remainder of the plant will follow as soon as the first unit is occupied.

The plant will be of steel and brick construction, with an ornamental limestone entrance to the general offices at the front of the building. The latest type of lighting will be used throughout the offices and plant. The new plant and grounds include a cafeteria and adequate parking space to accommodate 750 employees.

In addition, the new plant will have improved facilities for its service and field research departments, as well as clinic and conference rooms. The service and field research departments are being re-equipped with the latest testing and quality control equipment.

Proposed new plant of Sterling Tool Products Co., west of Chicago's city limits.

- 24 COLOR SAMPLES
- METHODS OF COATING
- ADHESIVES & APPLICATION
- ENGINEERING SERVICE
- FUNCTIONAL USES
- DECORATIVE USES

GET THIS NEW FLOCK BOOKLET

Whether or not you are presently using flock in the finishing of your product, we would like you to have a copy of our new "Flock" booklet—just off the press. If you are now flock-coating your product, we believe you will be interested in examining the uniform, densely-coated sample swatches made with Behr-Manning cut-to-length rayon flock.

Or, if yours is a product which may benefit competitively from the scores of decorative and functional advantages of flock coating, you will enjoy reading about flock finishing, and the rich, colorful, dense coatings made with precision, cut-to-length rayon flock.

In either case, "Flock" is an invaluable booklet for your finishing methods file, for flock coating is truly one of the most exciting new methods in product finishing. Your copy is free, and with our compliments.

BEHR-MANNING · TROY, N. Y.

(DIVISION OF NORTON COMPANY)

75 YEARS OF QUALITY AND SERVICE

Facts for Finishers

Quick refresher briefs that include practical and timely things about which you may want to know or be reminded.

By PROFESSOR PRICE

Ventilation in the Finishing Room

Since large amounts of inflammable solvents are vaporized in the finishing process, there should always be adequate ventilation of the finishing room, both day and night. This is necessary to increase the comfort and to protect the health of the workmen, decrease the fire hazard, and increase the drying speed of the finishes. The action of exhaust fans in spray booths, provided some windows are open or an air intake system is in use, is usually enough during working hours. At night several windows or ventilators should be left partly open.

Over dipping tanks or areas where paint removers are used, exhaust fans and hoods should be provided. If a separate drying room is used, air movement should be insured by a power-type ventilating system, or at least by fans in conjunction with a few air intake and exhaust ports at top and bottom of the room.

Paint Removers

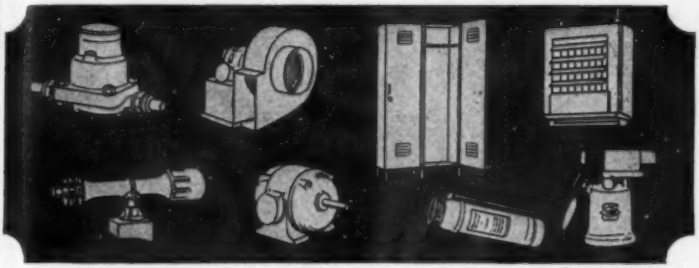
Commercial paint removers usually contain wax to slow down the evaporation of the fast, powerful solvents so they will have time to soften the finish. After the finish is removed, the surface should be washed with mineral spirits, turpentine, xylol, or lacquer thinner to remove all traces of the wax. Alcohol is not a good solvent for this purpose because it is not a good wax solvent, contrary to the recommendation of some manufacturers.

Traces of wax left on the surface will interfere with the drying of lacquers, varnishes, and enamels applied later. Ordinary lacquer thinner, which is wax-free, is a good remover for most air-dried finishes. This eliminates the wax hazard. If the thinner evaporates too fast, you might submerge the article or cover it with rags kept wet with thinner. This serves the same purpose as the wax.

Chemical Driers

Driers in air-drying products such as varnishes, oil and varnish enamels, alkyds, etc. serve as catalysts to hasten the oxidation process. These driers are lead, cobalt, manganese, zinc, iron, calcium and other metallic compounds incorporated at the time of manufacture. Their action is not fully understood, but each one acts in a different way.

Cobalt dries the surface; lead, calcium, and zinc hasten drying from the bottom up. Manganese



If you make things like these

BY ALL MEANS INVESTIGATE

SILCO

GLASS-BASE PROTECTIVE SPRAY COATING FOR STEEL AND BRASS

This new baked finish, virtually liquid glass, has extreme resistance to corrosion, abrasion and impact—is, therefore, an ideal protection for surfaces exposed to dampness, mild alkalis, gas, fumes. As it withstands heat up to 1000° F., it will materially increase the life and improve the appearance of stoves, heaters, mufflers, radios, files, lockers, etc. Comes in soft egg-shell matte finishes of any desired color.

SILCO is easy to work. It comes ready to use; no thinners, no fire hazard, no obnoxious odors. Spray it on and dry at 200° F., with a final cure at 350° F. in any industrial oven. Samples on request.

BLACK-MAGIC A 1-bath oxide black that gives all steels except stainless a dense black finish that won't rub off. Effective rust inhibitor. Good paint and lacquer bond. Chemical reaction at 300° F. Send for the "Black Book."

MITCHELL-BRADFORD CHEMICAL COMPANY

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BLACK-MAGIC OXIDE BLACKING SALTS
WITCH-DIP & WITCH-OIL FINAL FINISHES

SILCO Glass-Base PROTECTIVE COATING
HEAT TREATING SALTS, CLEANERS, ETC.

N. Y. City: Lacquer Finishing Co., Inc., Clifton, N. J.—C. D. Hamilton, Fayetteville, N. Y.—CLEVELAND: Universal Paint & Varnish Co.—PHILA.: Albert Printz, Germantown—ST. LOUIS: G. S. Robins & Co.—DALLAS, Tex.: Texokana Supply Co.—LOS ANGELES: Barber-Webb Co.—OAKLAND: Geo. A. Kushman Co.

has a combined action. Most oxidizing products contain more than one drier, properly balanced to get the right action. An excess of drier causes loss of durability, loss of gloss, wrinkling, and other troubles, especially in baking materials. Curiously, the action of wrinkling products is caused in some degree by large amounts of certain driers.

Moisture Content of Wood

When wood is finished it should have the same moisture content as it will have in actual service. For furniture, it should be 6% to 8%; for exterior products it may be higher. If the moisture content is too high, shrinkage of the wood in service may cause splitting and opening of the joints; if too low, expansion may cause buckling and warping. Proper moisture content also aids machining prior to assembly.

Harmful Fingerprints

In painting metal surfaces that are exposed to the weather or other severe service conditions, it is important to avoid touching the metal with the bare hands between cleaning and the first coat of paint. Workmen should wear clean cotton gloves at this stage. After the first coat, it doesn't matter. Many tests have shown that finger marks decrease durability as much as 60%.

Clean Your Spray Guns

Don't soak spray guns in solvent to remove deposits of paint. This may also remove useful oil from gaskets, cause corrosion, and may stop up air passages. Clean the fluid passages by running clean, strong solvent through them. Clean the outside with a brush or rag saturated with solvents; or wrap the gun in a solvent-saturated rag and set it aside an hour or so to soften the paint deposits.

In extreme cases, disassemble the gun and soak those parts that have fluid passages in clean solvent, cleaning the passages with a test-tube brush. Avoid scraping with metal tools, as this may damage the finely machined parts. Your spray gun is a precision instrument. You wouldn't clean your watch with a wire brush or a knife; be just as careful with your spray gun.

Stain Bottoms of Chairs and Backs of Dressers

Why not stain the underside of chairs? Many purchasers of chairs examine them carefully all over before buying. A spotted, smeared unfinished surface underneath makes a bad impression. Likewise the backs of furniture and the insides of drawers should be stained and given a coat of sealer or lacquer, so they will have a finished appearance.

Tumble Jacks Used in Tumble Finishing

Tumble jacks often speed up the tumble finishing of small objects, and improve the quality of the coating job. Tumble jacks are blocks or balls of wood dumped in with the regular charge to promote even distribution of the finish. They can be separated from the articles by hand after the charge is dumped into trays for drying and inspection. They can be used over and over again. Scrap materials can often be used for tumble jacks.

Spitting of Spray Guns

If a spray gun spits and sputters, look for a loose or ill-fitting gasket behind the fluid tip. If this

A to Z KNOW-HOW for FINISHING ALUMINUM

Watson-Standard TECHNICAL COATING SYSTEM

The Watson-Standard system of technical coatings for finishing aluminum covers applications of all types from airplanes to zippers. The system has been formulated to answer all finishing problems arising with the greater demand for this versatile light metal.

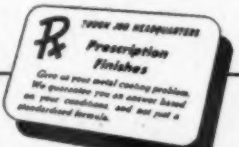
Coating, decorating, and lithographing and all phases of production including preparation, treatment and finishing are discussed in the Watson-Standard treatise on "Organic Protective and Decorative Coatings for Aluminum Metal"

These coatings offer protection against weather, moisture, heat, abrasion, acids, alkalies and other corrosive materials. They add to the beauty by increasing the lustre of both metal and colors and are suited for use on castings, sheet or foil, extrusions and forgings. Since they are extremely durable they will withstand the severe fabrication necessary with many aluminum products.

Write for the Watson-Standard Treatise, "Organic Protective and Decorative Coatings for Aluminum Metal." No obligation.

THE WATSON-STANDARD CO.

Manufacturers of
PAINTS • VARNISHES • INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS



FACTORY AND GENERAL OFFICES: PITTSBURGH, PA. • WAREHOUSES: BOSTON, BUFFALO, DETROIT, NEW YORK

is not the trouble, look for loose air connections or small leaks in the air hose. The fluid pipe on the pressure tank may not be tight. The needle packing gasket may be loose. In suction-feed cup guns the air intake on the cap of the cup may be clogged.

Clean Room and Equipment For Clean Finishing

Many finish rejects are caused by dirt; dust in the air may be settling on the work; the paint container may be dirty; the enamel or varnish may have seeded out, due to storage conditions, age, etc. Air passages in the ovens may need cleaning. Apply linseed oil to oven interiors to catch and hold dirt. Strain the finishing materials through cheesecloth (several layers) or felt whenever possible. Dust off the surface to be coated with a dusting gun; or better still, with a tack rag prior to spraying. Clean up the finishing room often.

Thin Coats of Shellac

Always spray shellac in very thin coats. Two thin coats are better than one heavy coat. Two heavy coats will not dry well and will orange peel badly.

Cleaning Up after Rubbing

The usual cause of a finish losing gloss and developing a dull haze to give a dead appearance a day or so after rubbing is improper cleaning up. After rubbing with oil or solvents, wipe the surface carefully before polishing or waxing; or better still, use an emulsion cleaner. When polishing or waxing be sure the surface is well polished so that no excess polish or wax remains. Above all, don't rub until the finish is thoroughly dry.

Head of Despatch Oven Co. Dies in California

Herbert L. Grapp, 52, president of Despatch Oven Co., Minneapolis, died unexpectedly March 22 while on a vacation trip in California. Death was reportedly due to complications following appendicitis.

Mr. Grapp is survived by his father, A. E. Grapp, founder and chairman of the board of Despatch Oven; a wife, Ida S. Grapp; and one son, Robert H. Grapp. All live in Minneapolis.

Herbert Grapp, an air force veteran of World War I, joined his father in developing and expanding the Despatch Co., which is now over 45 years old. During World War II he served as manager of the firm and last year was elected president.

An aggressive and vigorous executive, Mr. Grapp was instrumental in building up a large national organization for Despatch, with headquarters and factory in Minneapolis, a field engineers' office in Chicago, and engineering representatives in principal U. S. and foreign cities.

Mr. Grapp was active in veterans organizations, served as vice commander of Flotilla No. 2, Coast Guard auxiliary, and was a Mason and Shriner.

W. L. McCracken Director of Research at Detrex

Dr. W. L. McCracken, has been appointed director of research and manager of alkali manufacturing by Detrex Corp., Detroit Michigan. This promotion gives Dr. McCracken complete charge of chemical research and development engineering, as well as the chemial manufacturing operations carried on at the Detrex Hillview Plant. Dr. McCracken will serve under C. F. Dinley, Sr., vice president in charge of research and engineering.

W. L. McCracken holds degrees from University of Missouri and Iowa State

SOFT

as a Velvet Glove

STRONG

as an Iron Hand

CLAREMONT *Flocks**

*RAYON • COTTON • WOOL

Various Length Fibres
Uniform • Fluffy • Filling

Brilliant Colors, Pastels
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Decorative Simulations: Suede, velvet, leathers, embroideries, exclusive fabrics . . . Ingenuity alone limits the range of sales-stirring effects.

Industrial Uses Include: Insulations, Surface coatings, Protective finishes, etc.

A Claremont flocked surface has the appearance and feel of a rich custom finish . . . soft as a velvet glove . . . radiating charm and sales appeal. Yet this expressively exquisite application is durable and tough . . . a rugged, seamless surface that wears like iron.

Claremont flock, the finish with a thousand uses, can be quickly and economically applied to almost any surface or shape . . . glass, wood, metal, paper, cloth, leather, etc. Provides a soft-textured, protective, non-marring surface.

Check the advantages of Claremont flock against your finishing requirements, then write for samples and prices. Full details on application techniques and uses will be sent promptly upon request. Inquiries invited!

CLAREMONT WASTE MFG. CO.
The Country's Largest Manufacturer of Flock
CLAREMONT, NEW HAMPSHIRE

EFFECTIVE USE AND MAINTENANCE OF

Portable Power Tools

By DOUGLAS H. BOSTWICK

Plant Manager of The Wisconsin Chair Company tells where both electric and airdriven portable tools are used to advantage and explains what methods are employed to keep them efficient.

PORTABLE tools are indispensible for economical volume production. We are convinced of this and we have impressed employees who use them with the importance of correct handling, use and maintenance. More than half the battle is won if the man in the shop is convinced that the portable tool he uses is precision equipment—not an accessory to be tossed around and mishandled.

We use portable electric sanders, screw drivers, routers, drills and air-driven rubbing machines. It is up to management, working in conjunction with suppliers, to select portable tools of adequate capacity for the various jobs they are expected to perform. Obviously, portable tools cannot be expected to give satisfactory service if they are frequently overloaded.

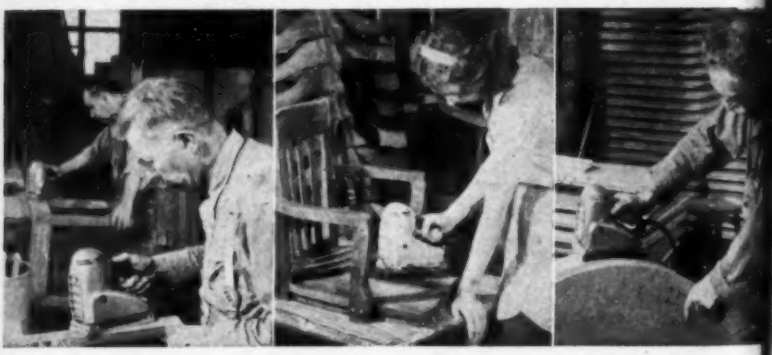
For example, in the pattern room and assembly department we use portable endless belt sanders for the preliminary sanding on chairs, case goods and tables, whereas the final sanding in the white, and sanding between finish coats, is

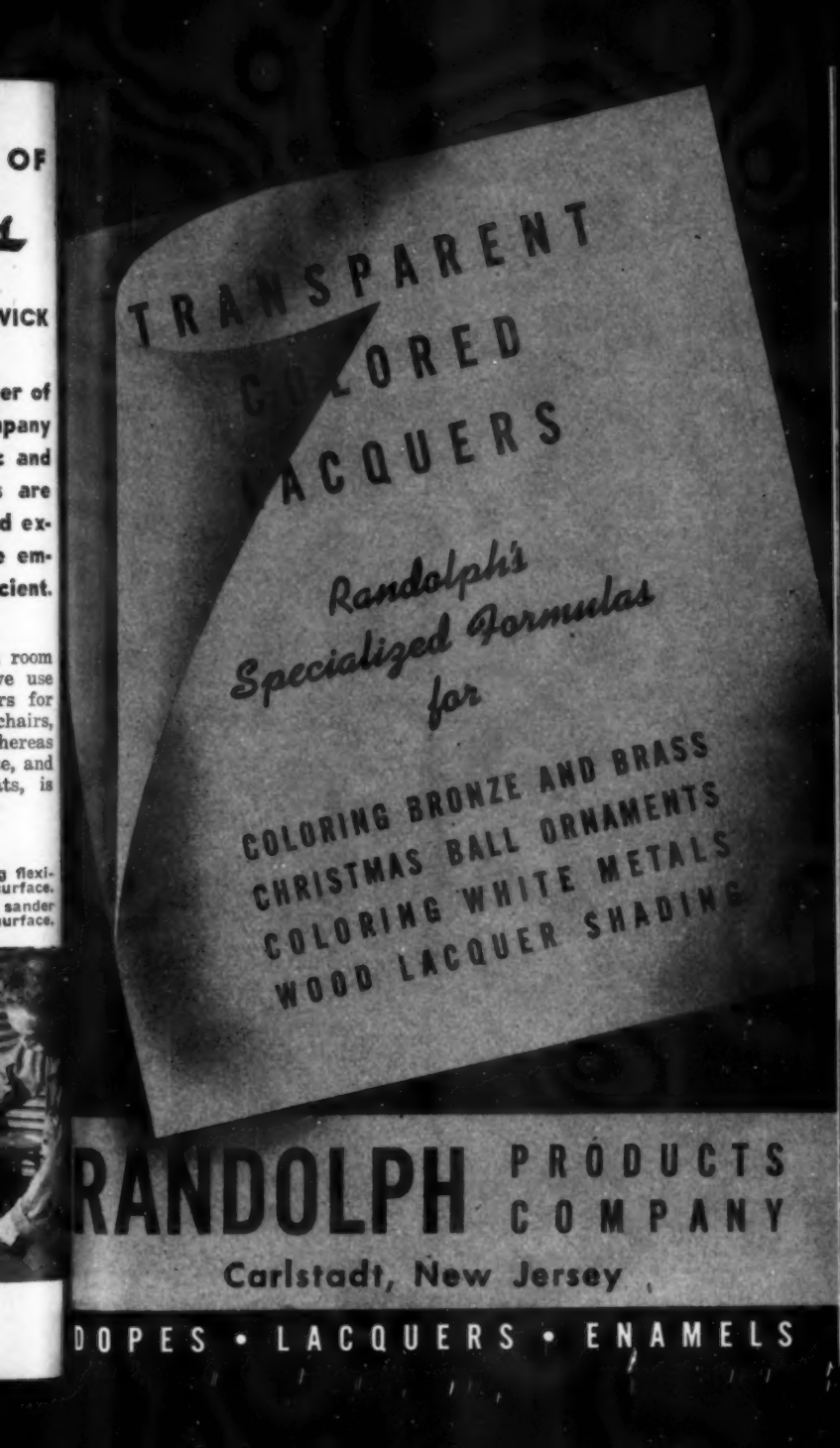
Key to illustrations below:

Left—Sanding assembled vanity benches in the white.

Center—Sanding saddle-seat chairs with portable finish sander—using flexible sponge rubber pads to prevent any distortion of the shaped-to-form surface.

Right—Sanding curved surfaces of circular table rims with a portable sander fitted with flexible sponge rubber pad which conforms easily to curved surface.




TRANSPARENT
COLORED
LACQUERS
Randolph's
Specialized Formulas
for
COLORING BRONZE AND BRASS
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done with portable finish sanders the pads of which operate with an orbital motion.

Straight line production methods are employed. The former hand sanding line has been replaced with new portable electric finish sanders. These machines are used almost continuously under dusty conditions throughout each working day, therefore they provide an excellent example for discussion on use and maintenance.

Portable Sanders—Their Operation and Maintenance

These sanders are used for final sanding of chair parts in the white; for sanding tops and panels of case goods and table tops; and even for sanding curved table aprons. When we sand curved surfaces and saddle-seat chairs we use a flexible sponge rubber pad under the sandpaper. This sponge rubber provides a soft but firm cushion which conforms to the contour of the surface being sanded.

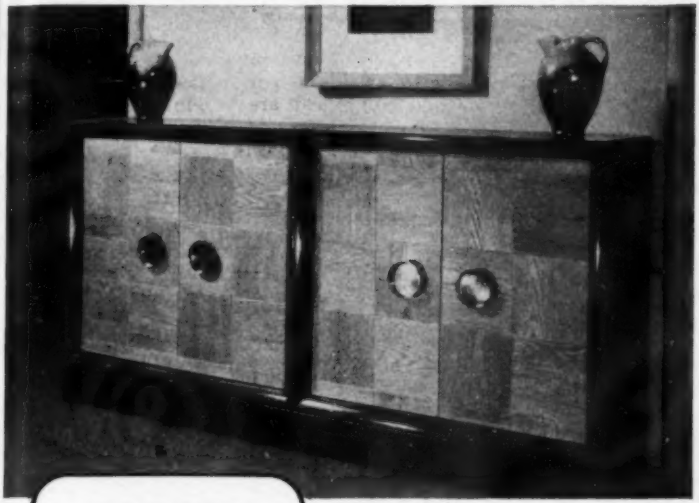
The raised grain on table tops treated with bleaching solution is quickly and easily sanded down smooth with a portable sander.

Portable sanders are used to cut down the raised grain which follows bleaching treatment of any wood surfaces. They are also used for fine smooth sanding following a coat of lacquer sealer, and even on the first coat of lacquer.

Each operator is held responsible for his machine. Of course, before a workman is entrusted with one of these machines he is thoroughly coached on the "do's" and "don't's" in the use and care of portable tools. Every morning before starting to work the operator oils his machine with an oil specified by the tool manufacturer. At frequent intervals during the day he removes and cleans the filter cloth which is used to screen air for cooling the motor. This helps to keep the motor running cool.

Each Friday evening, at the close of the work day, the operator turns in his sander, tagged with his badge number, to the machine shop. He picks it up again Monday morning. On Saturday all sanders are taken apart, brushed and blown off, and given a thorough inspection which includes looking over switches, bearings, brushes and commutators. Any worn or defective parts are replaced, given a thorough oiling, and reassembled. We keep a stock of small working parts for all types of portable tools, for replacements.

What has been said about these portable sanders applies to all other portable equipment except,



A Finish to Complement Superb Design

An Original James Mont Design... Executed by Modern Mode Furniture Company, N. Y.

The right finish is more than a surface protection . . . it accents beauty, both in design and construction. And this holds true not with furniture alone but with industrial products of many types and kinds.

Whatever your finish requirements, meet them with an Egyptian finish . . . right in every respect. Special inquiry is always invited.

THE EGYPTIAN LACQUER MANUFACTURING COMPANY

SPECIALIZED PRODUCTION FINISHES

P. O. BOX 444, NEWARK, N. J

of course, such tools as screw drivers, drills and routers which do not operate under such dusty conditions. These tools are taken apart, cleaned, inspected and oiled once a month. Of course, bearings, gears, spindles, chuck jaws, and kick-out attachments on screw drivers are given a few drops of oil daily by the operator.

Compressed Air Driven Portable Tools

The same procedure applies to the air-driven equipment. Once a week a service engineer inspects all pipe fittings and air lines. He fills oil cups which are placed directly in the air lines close to each outlet where portable rubbers are attached.

Operators are not supposed to be experienced electricians or tool repairers, nor do they have the time to do this work. That is the job for men in the machine shop and tool room. It is through this consistant cleaning, oiling, inspection and replacement of worn parts that the portable tools all over our plant are kept in good running order, ready to run when needed, and for as long as they are needed.

Our management realizes the value of portable equipment and never misses an opportunity to let the workers know it, therefore our employees are duly impressed with the importance of these tools. They take pride in them and handle them with reasonable mechanical care.

Sanding the dry lacquer sealer coat on flat tops produces a smooth level surface quickly and easily. A careful workman soon learns the technique—using the right abrasive paper and the right "touch" in guiding the machine to its work.

You Can Predetermine Finish Wearability

BY A. P. SCHULZE

HOW LONG WILL this painted or that lacquered surface wear? Industrial finishers have been asked this question hundreds of times. Superintendents, research directors, chief chemists, testing engineers and finishing executives, vitally concerned with product-coating quality, have raised this point many times.

Whenever the subject of finish quality is under discussion, it is more than likely that the question of finish wearability will continue to pop up with increasing frequency, particularly in these days of greater demands for superior finish quality.

The question may seem to lean a bit toward the ambiguous side, but really it is decidedly specific in nature. It can be answered without any guesswork whatsoever, thanks to the remarkably rapid strides made in the development of

THE MARK OF QUALITY A-M IN FINE PAINT FINISHES

for fine Office Furniture

American-Marietta finishes come from years of intensive laboratory and field study—as in the manufacturing of Office Furniture, A-M Craftsmen are continually developing fillers, stains and varnishes that today represent the ultimate in fine finishes. This time-tried research and field study service is available without obligation in finding *new* methods to match your *new* ideas.

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American-Marietta Company

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A GREAT NAME IN PAINT MAKING

precision-type laboratory research instruments, designed expressly for performing qualitative and comparative abrasion analysis.

Once upon a time the resistance of surface finishes to normal abrasive wear could be evaluated only through costly, time-consuming performance tests, under actual field service conditions. Today, potential wear-resistance of coated surfaces can be determined accurately, quickly and easily, in a matter of minutes, under controlled laboratory conditions.

Various types of wear-inducing machines, equipped with rotating wheels, discs or brushes to simulate actual abrasive conditions, have been developed to test, measure or gauge the wearability factor of a surface finish. One such instrument, the Taber Abraser, establishes a scientific wear rating that provides a standard value for the wearability of the protective coating tested. It duplicates in measurable terms, the character and extent of rubbing abrasion which a paint or oxidized surface is most likely to receive in actual service. It eliminates "approximations" in determining surface finish durability under abrasion action.

The method is simple. A coated specimen revolves on a motor-driven turntable under weighted abrasive wheels. The test runs until abrasion has marred the appearance or impaired the serviceability of test panel to a desired degree. Of course it may be temporarily halted at any time, for inspection, if desirable.

A counter in the instrument automatically records each "wear-cycle" as it occurs. The total number of wear-revolutions registered gives a calibrated report of the wear-resistant characteristic or capacity provided by the finished surface which is undergoing a test.

Since complete but inexpensive testing equipment sets are so generally available today, they meet the abrasion-resistance analysis requirements of those who seek factual data on the wearing qualities of their own particular coatings or other finishes, in connection with product development and quality improvement.

That finish wearability is heading for a position of increasing importance in finishing circles, seems readily apparent. Signs are rapidly mounting on all fronts that the "war of competition" is about to be waged with more vigor and intensity than ever by manufacturers, so it appears quite likely that surface finish wearability will form a potent "weapon" in the sales "arsenal" of more and more concerns.

Conveyor Chain Catalog

Chain Belt Co. of Milwaukee is distributing a newly published bulletin on Rex steel fabricated and cast chains for every industry. All of the Company's standard chains are illustrated and briefly described.

In addition, three pages of installation photographs show typical examples of how each style Rex chain is applied in industry; two pages illustrate standard attachments and their use.

For a copy of this book, write Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis., requesting Bulletin No. 46-10.

Bulletin on "Iridite"

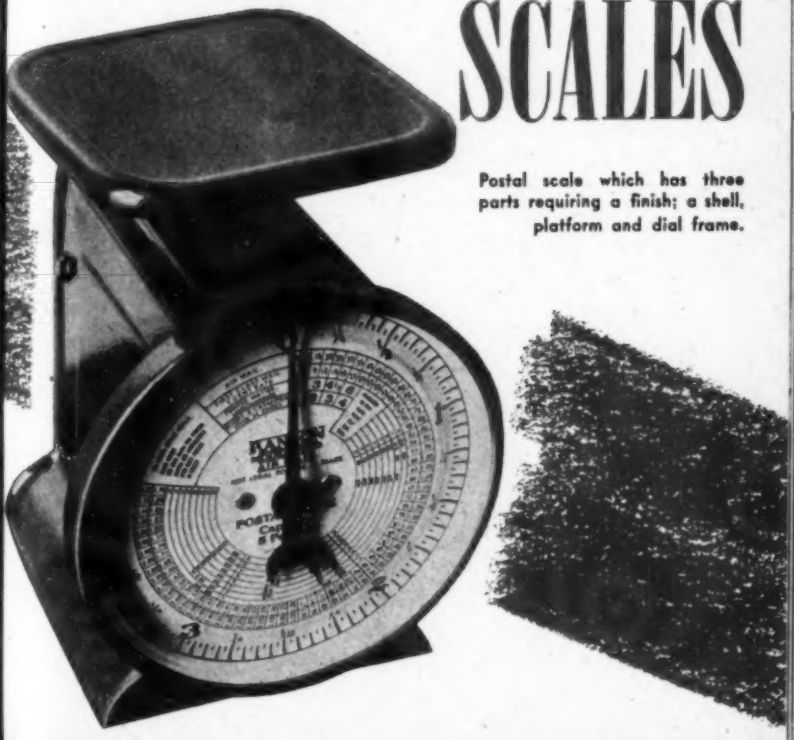
A 4-page illustrated bulletin published by Rheem Research Products, Inc., 4004 E. Monument St., Baltimore, Md., answers all the questions about "Iridite," the quick-dip process for corrosion resistance or paint base on all zinc and cadmium surfaces.

BY P. E. STONEHOUSE

Works Manager of Hanson Scale Company, Chicago, shows how modern equipment adapted to the product and the work is used effectively and economically.

Modern Equipment for Finishing SCALES

OUR BUSINESS is making scales. There are six types —dairy, cotton, diet, bath, postal, and household. None of the pieces is extremely large; however there are thousands of pieces to be fabricated, finished and assembled. The finishing room, while an integral part of the operation, is the smallest department in the plant. Modern methods and equipment are responsible for the high

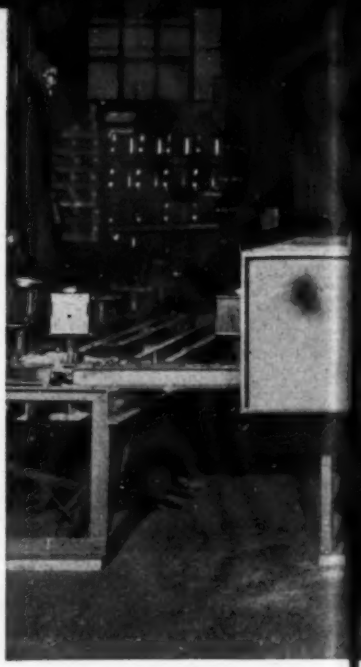


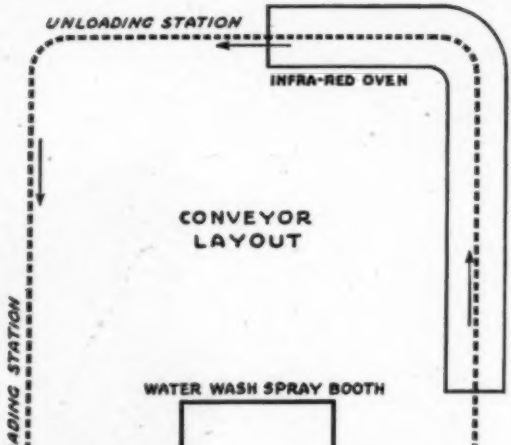
Postal scale which has three parts requiring a finish; a shell, platform and dial frame.

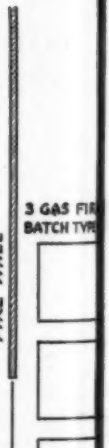
rate of production with a minimum of employees and working space.

In planning the layout of our various production departments, consideration was given to the quantity and size of the pieces involved, the number of operations, handling of parts, equipment, employees required, and the necessary space needed.

Let us consider the finishing room. Various quantities of parts of each of the six types of scales require a finish. Some receive one coat; other parts get two coats. All parts must be degreased before finishing. Some parts are finished singly—for example, the postal scale shell, and platform illustrated in the picture at the beginning of this article—while other small parts are placed on jigs to be finished in multiple. Forced drying of the synthetic enamel finish is necessary; in other words, a baked finish.







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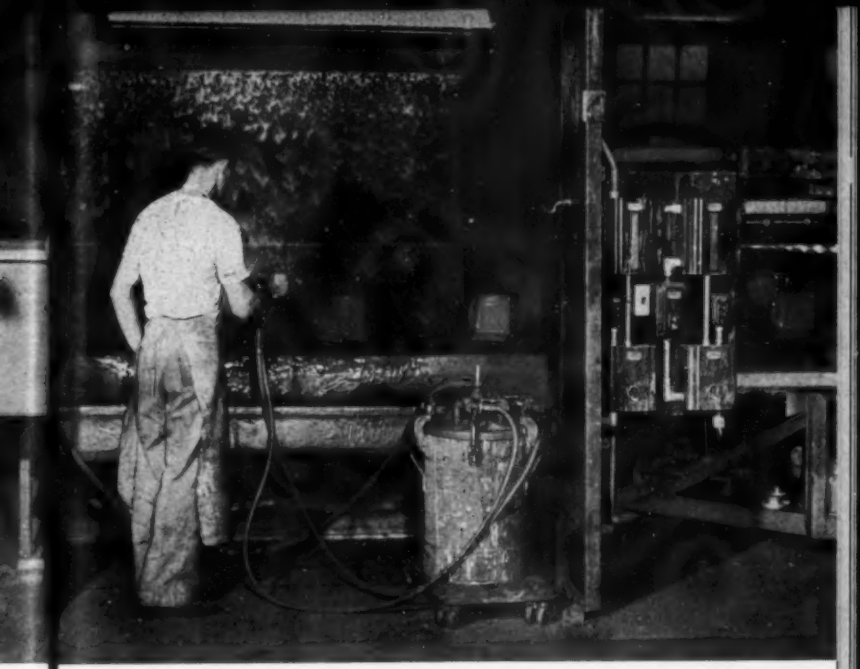


This picture and the conveyor layout on opposite page show the simplified efficiency of our setup for putting protective coatings on our new scales.

Handling of parts singly or on jigs by the spray operator—off trucks into the booth and, after spraying, out of the booth onto trucks—would cut production to such an extent that two, or possibly three spray booths would be needed to accomplish the same work that we now do with our conveyorized unit, as shown in the acompanying illustration.

Conveyorized Setup Has Variable-Speed Drive

This unit consists of a monorail conveyor 56-ft. long, carriers on 12-in. centers, operating through a water-wash spray booth, and an infra-red oven. Conveyor speeds range from 3 to 18-ft. a minute through a variable-speed drive. Also to be considered is the ease of baking the finish and the greatly reduced floor area occupied by this unit, as compared with the space necessary for additional booths, plus truck space, and working areas.

Another factor that contributes to increased production is the speed and rhythm of operation on this unit. The crew of four consists of a spray operator, one loader, one unloader, and a combination oven man, trucker and racker of small parts on jigs.

Scale parts are brought from the fabricating department in large wire baskets to be placed in the gas-fired batch-type ovens. Here they are baked from four to eight hours at 450° F. to remove

grease and oil. Simply formed parts can be degreased in four hours, but those parts having rolled edges or more intricate forming must have a longer time in the oven. Upon removal they are allowed to cool at ordinary room temperature.

The baskets are then delivered to the loading station where parts are placed on the conveyor either singly, or racked in multiple on jigs. Carrier pins on the conveyor being spaced on 12-in. centers make it possible to use any multiple of 12-in. for inserting supporting fixtures, either for single items or for jigs.

Controls for the entire unit—conveyor, water-wash booth, infra-red oven and lights—are mounted on a panel at the right of the spray booth, within easy reach of the spray operator. The variable-speed drive is on the floor at right in the picture.

On one-coat jobs, the parts are sprayed with synthetic enamel; then they pass through the infra-red oven and are removed at the unloading station to cool and be delivered to assembly. Those parts requiring two coats are allowed to remain on the conveyor for a second trip through the spray booth and infra-red oven.

Executives in Interchemical

Mr. J. R. Esposito has been elected a Vice President of Interchemical Corp., New York, N. Y. Mr. J. G. Morris, formerly Executive Vice President of the Finishes Division of Interchemical succeeds Mr. Esposito as President of that Division.

Mr. Esposito began his career at the early age of 22 as a salesman in the New York office of The Ault & Wiborg Corp. He rose quickly to manager of the varnish department. In 1928 the corporation became a subsidiary of Interchemical and later was consolidated with the Murphy Varnish Co. and Scriver & Quinn of

J. R. Esposito J. G. Morris

California to form the Interchemical Finishes Division. He has been President of this Division and the former Ault & Wiborg Corp. since January, 1931. Mr. Esposito is recognized as one of the leading figures in the product finishes industry and has always been an active member of the trade associations in this field.

Mr. Morris started with the Ault & Wiborg Corp. in March, 1931. Before coming east in September, 1944, he was Vice President and General Manager, and made his headquarters at the main plant in Cininnati. He was Mr. Esposito's right hand in steering Ault & Wiborg through the period of consolidation and will now assume active direction of the greatly expanded Interchemical Finishes Division. Mr. Esposito brings to Interchemical management his 40 years of experience and invaluable first hand knowledge of the protective coatings and product finishes industry.

Despatch Oven Promotes Two Important Men

The Despatch Oven Co., Minneapolis, Minn., announces the appointment of two new officers who will also serve on the board of directors as vice presidents.

C. P. Doherty, a veteran employee of the company for 27 years, becomes factory manager, and G. L. Schuster is named chief engineer.

In a report to stockholders, H. L. Grapp, president and general manager, declares that conversion to peacetime manufacturing has been entirely completed. The company currently is engineering and manufacturing large mechanized finishing systems, foundry ovens and allied industrial heat processing equipment. Fortunately, Despatch has been able to maintain prompt deliveries despite shortages of material.

Rolling a Color Coat on Metal Sheets

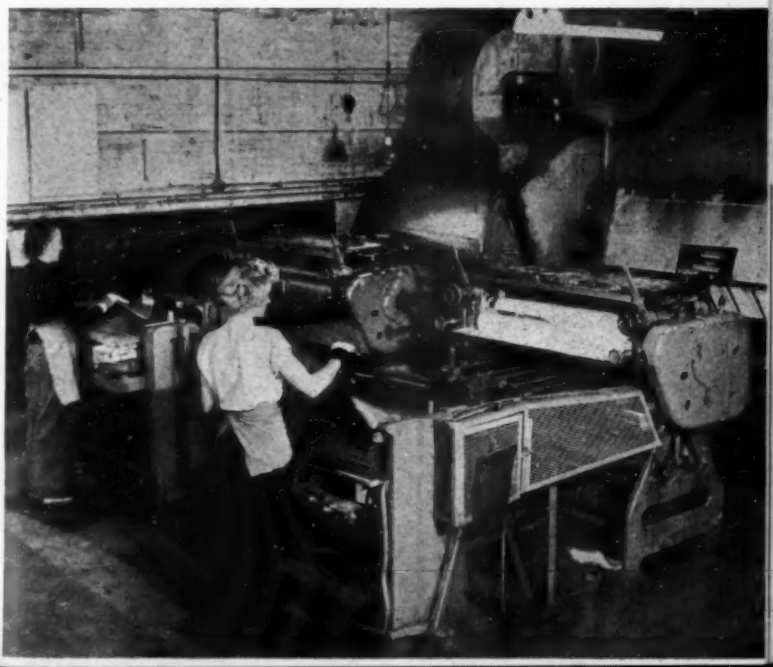
Superintendent of American Metal Decorating Company, Chicago, tells how a uniform coat of enamel is applied to sheet metal stock by means of roller coating machines. Here metal sheets are run through and coated one side at a time.

By JOSEPH MIHALKO

OUR WORK includes the coating of thin smooth metal sheets with enamel. Specifications call for a solid color coating of uniform thickness. Take, for example, coated sheets which later will be cut and formed into jar and bottle closures. Base colors in enamels are applied to both sides of the sheet metal; then the name, design or trade mark is lithographed in multiple on the sheets.

The roller coater we use is well adapted to our work. Our custom-

Fig. 1—Two roller coating machines, each in line with an oven which bakes the coating applied to metal sheets. Notice the automatic elevating feed tables.



ers specify all colors as well as the thickness of the coating. The finish must stand up under such severe machining operations as cutting, forming and threading.

To better explain the method of coating, I am showing, in Fig. 2, a cross sectional diagram of the approximate arrangement of the rollers and the direction in which they turn. Coating material is placed in reservoir A to a depth which will permit the lower part of fountain roller No. 1 to revolve in it and pick up some of the enamel. This picked-up enamel then transfers itself by contact to feed roller No. 2. Feed roller No. 2, in turn, transfers the enamel to the coating or applicator roller No. 3.

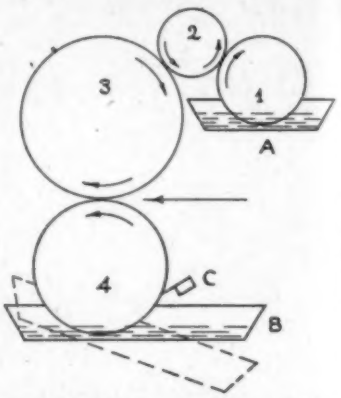


Fig. 2—Diagram showing relative position of rollers in coating machine.
1—Fountain roller (5-in., steel).
2—Feed roller (4-in., steel).
3—Coating roller (10-in., composition).
4—Bottom roller (8-in., steel).
A—Fountain or paint reservoir.
B—Drip pan (can be tilted).
C—Doctor blade or cleaning scraper.

Details of How the Roller Coater Works

As the metal sheets pass between rollers No. 3 and No. 4, enamel is rolled on the top surface only. Roller No. 4 operates in liquid enamel which has been caught from above in drip pan B. However, a straight-edge scraper or doctor blade C, cleans the surface of this roller perfectly before it contacts the under side of the metal sheet going through the machine. The drip pan B is necessary to catch drippings from roller No. 4 which always operates in contact with applicator roller No. 3. The enamel on the surface of roller No. 4 acts as a lubricant for the scraper or doctor blade.

A pump on the side of the machine recirculates the overflow caught in drip pan B; it pumps the liquid back into the reservoir so that the correct level is maintained at all times in the drip pan. A hand crank and worm gear, located on the outside of the machine, is used to tilt drip pan B down for cleaning, and to facilitate removal of the doctor blade C for sharpening.

As shown in the close-up marked Fig. 3, the hand wheel adjustments to regulate the pressure between rollers No. 1 and No. 2 are equipped with micrometer screws scaled to .001-in. The pressure between these two rollers determines the thickness of the coating applied to the sheet metal.

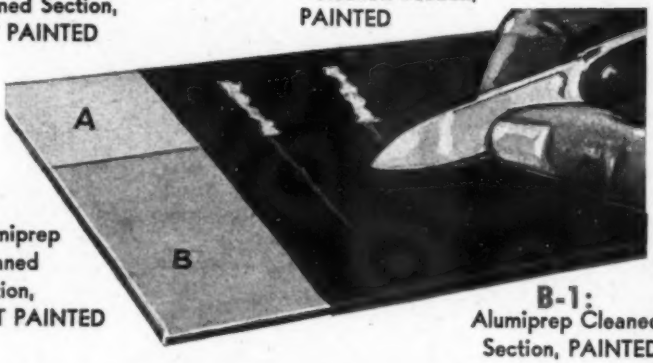
In setting up the machine, rollers No. 3 and No. 4 are adjusted so that roller No. 3 will coat the surface of roller No. 4 with enamel; that is, they must touch. Through this contact enough friction is exerted to carry thin sheets of metal through the machine. After rollers No. 1 and No. 2 are adjusted for pressure to produce the correct film thickness, this adjustment is not changed until the end of the run. *(To page 66)*

Make This Adhesion Test With

PREP PRODUCTS

A: Solvent Cleaned Section, NOT PAINTED

A-1: Solvent Cleaned Section, PAINTED



B: Alumiprep Cleaned Section, NOT PAINTED

B-1: Alumiprep Cleaned Section, PAINTED

The merit of Prep Products has been proved conclusively by the above tests. — Many laboratory technicians and paint superintendents have been sold on Prep Products after duplicating this test in their labs and on production. We urge that you also investigate the merit of Prep Products.

METALPREP for Steel Surfaces . . . GALVAPREP for Galvanized Iron and other Zinc-coated Surfaces . . . ALUMIPREP for Aluminum Alloys . . . PREPRITE for Corrosion-resisting Phosphate Coatings.

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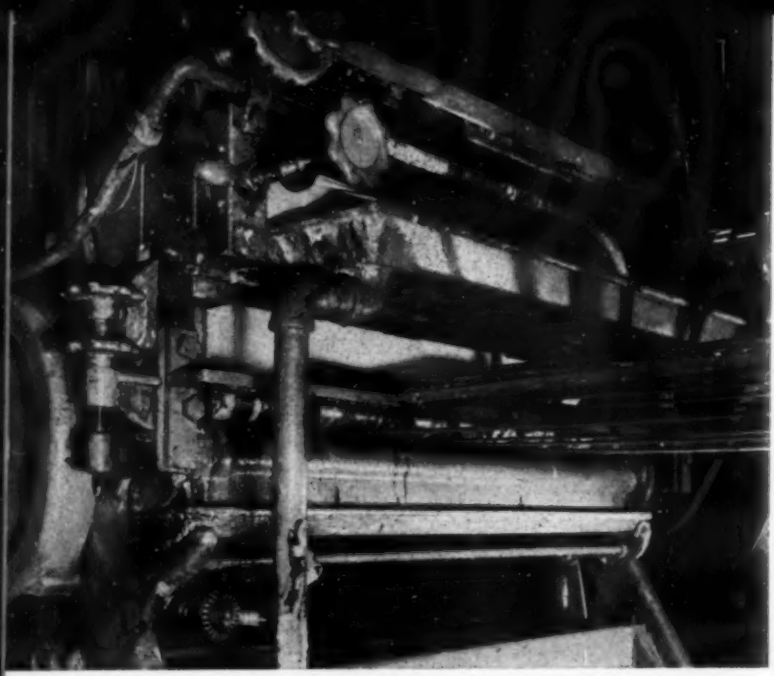


Fig. 3—A close-up, looking upward from floor, showing left hand side and front or infeed end of roller coating machine. This view shows roller adjustments.

During a temporary lull in production or any time when it becomes desirable to "throw the machine out of gear," this may be done without affecting the adjustment on rollers No. 1 and No. 2. The two levers extending above the machine, as shown in Fig. 1, may be moved from operating position at the left to right. This removes feed roller No. 2 from contact with applicator roller No. 3, and prevents an excess of coating material from building up between the feed roller and applicator roller when sheet stock is not moving through the machine.

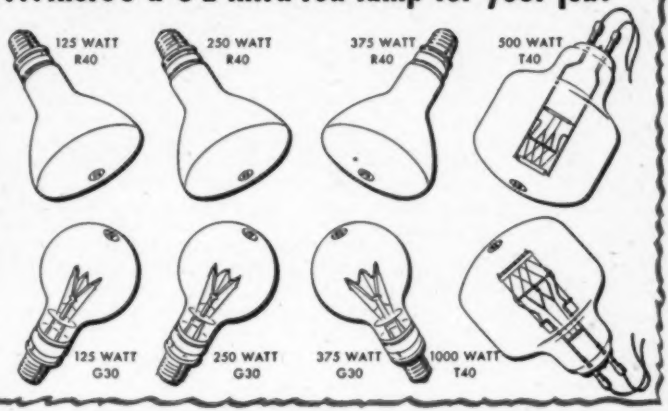
By returning the levers back to operating position (this may be done from either side of the machine) the roller coater is again ready for operation, and the pressure adjustment has not been disturbed. The rollers will coat sheet stock up to 38-in. wide. The machine is equipped with Alemite fittings and is given a "grease job" every 100,000-piece run. An automatic piece counter is located at the front end of the feed table bed.

Accurate and Uniform Thickness of Coating

Too much importance cannot be placed on absolute accuracy in setting up the machine to apply the specified thickness of coating. By using the micrometer screws on both sides of the machine for identical adjustments, we are assured of a uniform coating all the way across the metal sheet. As a further check on film thickness, we use a Pfund gauge to test the thickness of the coating on several

Whether you want to dehydrate cod fish, dry a finish , bake ceramics , cure hides . . . or what have you . . .

. . . there's a G-E infra-red lamp for your job!



Quick heat at low cost. That's what you get with General Electric industrial infra-red lamps and that's why they're being used successfully for so many jobs throughout industry. Pre-heating metals, thermo-setting cement, accelerating chemical reactions, drying plywood — to name just a few.

Infra-red is inherently your most flexible source of radiant energy for industrial processes. Efficient ovens can be designed to fit any production scheme. And now the wider selection of types and sizes available in G-E infra-red lamps makes it even easier to select the *right* oven for *your* job.

Remember, whatever infra-red lamps you need, General Electric makes 'em all! The full line includes sizes from 125 to 1000 watts, in both reflector and clear bulb types. For full information, consult a recognized infra-red oven manufacturer, or call your nearby G-E Lamp office. General Electric, Lamp Dept., Nela Park, Cleveland 12, Ohio.

G-E LAMPS
GENERAL ELECTRIC

sheets at the beginning of a run. About four tests are made across the width of each sheet to insure uniformity of film thickness.

Absolute accuracy in film thickness is not only reflected in the quality of finish obtained, but for reasons of economy too. To illustrate this point, the sheets being coated with white enamel, as shown in Fig. 1, require a film thickness of .02025-mm. This produces a coverage of 2009-sq. ft. per gallon. Should the film thickness be increased, through error, to .02500-mm. a coverage of only 1628-sq. ft. per gallon would be obtained. Multiply this difference by many thousands of sheets coated and a serious loss would result in coating material.

Rollers Must be Perfectly True to Function Properly

To get a uniform and accurate coating job, the surfaces of all rollers must be perfectly true. There is little wear on the fountain and feed rollers, Nos. 1 and 2 respectively. We have found that a bright hard chrome deposit of .008-in. thickness on roller No. 4 has a tendency to reduce wear to a minimum from the doctor blade.

The doctor blade is $\frac{1}{16}$-in. thick and its scraping edge is ground square across the thickness. The blade is replaced, after 24 hours of service, with a newly ground blade.

Applicator Roller Has Needed Flexibility

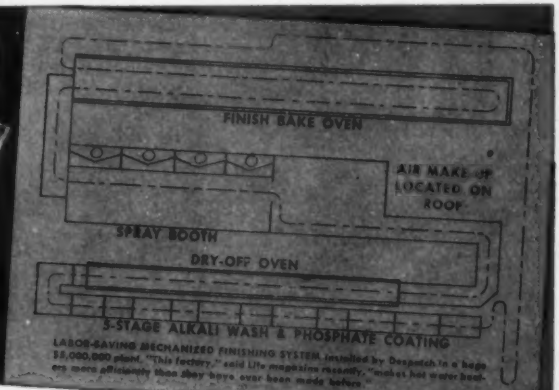
The composition applicator roller No. 3 has a gelatin base, therefore it is necessary to have different rollers for use in summer and winter. The life of a composition roller depends to a great extent upon the class of stock that is run. If the stock has sharply cut edges that are slightly burred, the wear will be faster than it would be on smoothly cut stock. A composition roller generally lasts about 30 days.

Some of these coating rollers have one or more concentric grooves, ½-in. wide by ½-in. deep, suitably spaced so that enamel will not be applied to a ½-in. wide strip across the face of the sheet stock. This is necessary on sheet stock that is intended for containers which will have an outside soldered joint.

Viscosity of Coating Material Must be Just Right, Too

Referring again to Fig. 1, the coating machine at the right is applying white synthetic enamel having a viscosity of 70-seconds at 70° F., as measured by a Ford cup, while the roller coater at the left is applying aluminum paint which has a viscosity of 20-seconds at 70° F. On production it is possible to coat 70 pieces of 30-in. wide stock per minute, but I would say that counting time out for

LIFE says "... the most efficient factory of its kind in the world ..."


FINISH BAKE OVEN
AIR MAKE-UP LOCATED ON ROOF
SPRAY BOOTH
DRY-OFF OVEN
5-STAGE ALKALI WASH & PHOSPHATE COATING
LABOR-SAVING MECHANIZED FINISHING SYSTEM installed by Despatch in a bigger, more efficiently than they have ever been made before."

...and it's equipped with this DESPATCH Finishing System

You couldn't ask for better proof of performance than this—that the "most efficient factory of its kind in the world" selected a DESPATCH Finishing System!

Every 20 seconds, like clockwork, it turns out another big water heater . . . completely finishing 180 units per hour. The system includes a 5-stage alkali wash and phosphate coating unit, a dry-off oven and a 100-ft. Despatch convection air heated Finish Baking Oven.

Loads weigh up to 13,500 lbs. per hour. Each heater has a maximum height of 5'8" and travels on a 770-ft. conveyor at 10 ft. per minute.

There are no transfer points . . . no handling . . . no manual controls . . . no wasted floorspace. It's an engineered, *mechanized* system built to save labor and give maximum finishing output per manhour.

OUTLET E... Despatch Finish Baking Oven showing hot water ... and conveyor on passenger. Conveyor ma... through 100 ft. oven. Heat is supplied by ... 670,000 BTU Despatch gas heater. WRITE FO... ADDITIONAL DETAILS.

Prompt Engineering & FAST Delivery!

If you need an Oven *now*, or a Complete Finishing System, call or wire DESPATCH today! We have engineering, manufacturing and installation facilities that assure you of prompt delivery . . . FASTEST IN THE INDUSTRY! Take advantage of this unusual service and get needed equipment *now*.

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Complete Finishing Systems or Individual Ovens
BAKING OVENS • DRY OFF OVENS • RUST PROOFERS
AIR CONDITIONERS • SPRAY BOOTHS • CONVEYORS
FLOW COATERS • WASHERS

lowering the feed table bed and loading same with sheet stock, we coat 28,800 pieces of 30-in. wide stock in an 8-hour shift on each machine.

The feed table bed is equipped with an automatic elevating device which raises the bed as sheet stock is fed into the coating machine. This keeps the stock at a convenient handling level for the operator at all times. Electric hoist trucks are used to pick up platforms of sheet stock and place them on the feed table bed.

Five narrow belts carry coated stock from the machine to the ovens where each sheet is picked up by an individual rack and carried through the oven. White enameled stock is baked for 12 minutes at 325° F.; aluminum coated stock is baked 12 minutes at 380° F. Sheet stock is then brought back and coated on the other side, and again goes through the bake ovens. Both ovens are gas-fired and are equipped with exhaust ducts to carry away the solvent fumes.

Detrex's Pacific Coast Plant Supplies Degreasing Solvents

The Detrex Corporation has a new chemical manufacturing plant, located on the Pacific Coast, for supplying Perm-A-Clor and Triad metal degreasing solvents to western manufacturing plants. The entire output of this plant will be non-flammable, stabilized, chlorinated hydrocarbons for high-speed thorough cleaning at low cost.

This new plant is close to raw materials and the rapidly expanding manufacturing areas on the west coast. These industries will now be more efficiently and quickly served than has been possible in the past.

Offices and warehouses distributing these solvents are located in Los Angeles, San Francisco, Portland and Seattle, under management of S. B. Crooks.

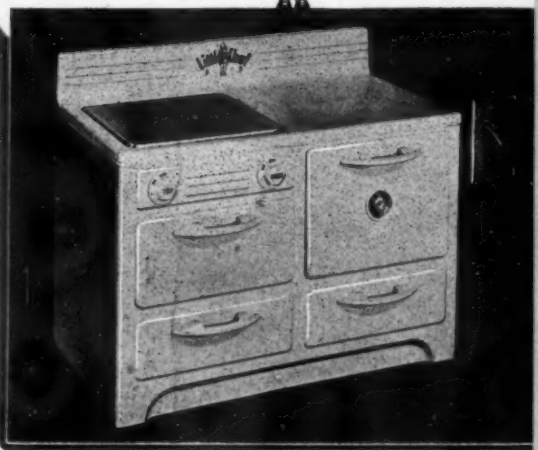
"Powdered air": This is a capsule description of Monsanto Chemical Co.'s improved gloss reducing agent, known as Santocel. The powdery silica, so fine that a cubic inch of it contains half a trillion (500,000,000,000) particles, permits lacquers and varnishes to dry to desired lusters.—Monsanto Chemical Co.

DESIGN is the organization and the arrangement of forms. When the design of an object is in keeping with the purpose it serves, it appeals to us as having a distinctive kind of beauty. We can learn the basic fundamentals of design from nature. An object is well designed when it is reduced to its utmost simplification in terms of function and form.

Form should always follow function. Honesty, simplicity and functional expressiveness are primary values involved in design, and are

DESIGN AND DECORATION OF THE Little Chef

By
HANS P. NELSON
Industrial Designer



Electric toy range with white enamel finish and a fine decal trade mark in attractive bright colors.

basically alike in the automobile, refrigerator, fountain pen, clock or the toy range. Modern decoration is the ornamentation or embellishment which is applied to a product. When a product has a good design and has an artistic and attractive decoration, it is a success.

When Rembrandt painted a model, friend or stranger, the significance of his picture did not depend upon his subject, but upon the painter's ability to put on his canvas something of interest in form, color and technique that he felt in his subject. Today we do not know that, as portraits, they were even likenesses—nor do we care. We do know that they were creative works of art.

The 18th Century painter put fruit on a table, made a painstaking copy of it, and in proportion to its realism, it was acclaimed a piece of art. I believe that works of art are commendable when the artist employs imagination and originality in his creations and yet maintains good color, technique and the principles of composition.

Originality and Creativeness in Industrial Design Problems

It is essential to be original and creative in the industrial design problems that we have to solve. Our age of today is characterized by imagination and invention. Let us design products in such a way that they will be characteristic of our own particular age. An industrial designer is required to demonstrate intellectual, artistic and engineering talents as well as sales ability in his field, in order to be successful in convincing clients that better styling and engineering of a product will mean improved functioning, better appearance, lower cost of production, and better sales.

It is the definite aim of the designer, as he designs a product, to give it good styling combined with good engineering, a handsome and distinctive finish, and good color or combination of colors. Designers realize that it is not quite enough for an item to be of good sound design and perfect mechanically.

To attract and hold the attention of the buyers of today. a product must also have a good finish and a good color. The inner quality of an item deserves a beautiful outward appearance; this will mean maximum identification and attraction.

Style, Color and Finish Can Make or Break a Product

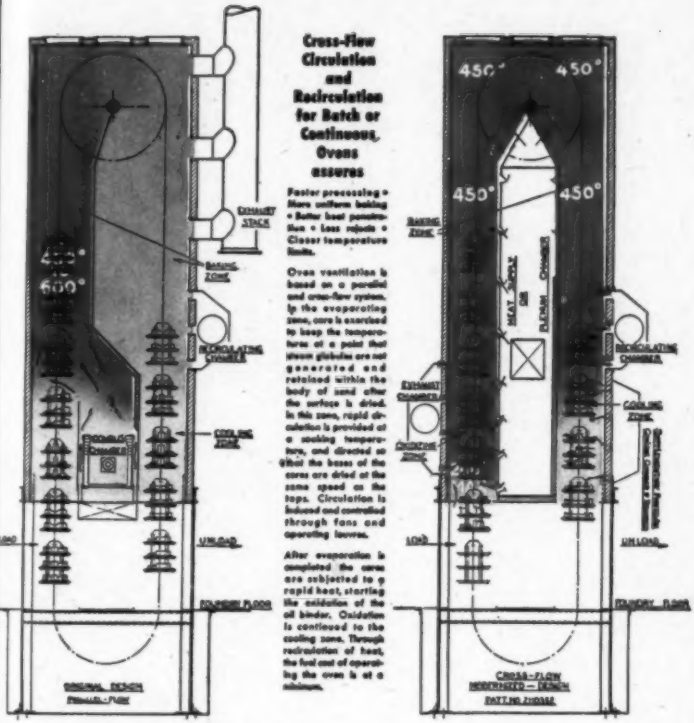
From the manufacturer's standpoint, it is very important that he employ a process of finishing that will give the maximum of efficiency, speed and economy. Since the problem of finishing each product is different, a system must be chosen to handle each problem individually. A particular finish should be formulated to be in accordance with the terms under which the item is to be manufactured, sold and used.

It is certainly true that a newly designed product should be given a good beginning. in life. This is acomplished by adequate functional design—followed by the right color and a dignified and appropriate finish. "Finish," as defined by Webster, is "the final touches given to a work." The final touch can make or break a work of art.

What Effects Certain Colors Produce on People

Some colors produce quiet and restful effects. Others are ostentatious and exciting to the sensibilities, so the specific sensations

BRING YOUR CORE-OVENS UP TO MODERN CROSS-FLOW EFFICIENCY



Cross-Flow Circulation and Recirculation for Batch or Continuous Ovens assures

Faster processing • More uniform baking • Better heat penetration • Less rejects • Closer temperature limits.

Oven ventilation is based on a parallel and cross-flow system. In the evaporating zone, care is exercised to keep the temperatures at a point that steam globules are not generated and retained within the body of sand after the surface is dried. In this zone, rapid circulation is provided at a cooking temperature, and directed so that the bases of the cores are dried at the same speed as the tops. Circulation is induced and controlled through fans and operating louvres.

After evaporation is completed the cores are subjected to a rapid heat, starting the oxidation of the oil binder. Oxidation is continued to the cooling zone. Through recirculation of heat, the fuel cost of operating the oven is at a minimum.

PLANT ENGINEERING: *Consulting assistance in plant layout to coordinate departmental operations, our experience dated from 1917 in this field.*

Such plant layout may be based on increasing production beyond present capacity, or it may be a rearrangement in this post-war period when operations are conducted under a new set of conditions.

MOTOR CLEANING EQUIPMENT: *Washing machines for cleaning bar-drawn. Kerosene spray or similar solvent usually used as the cleaning medium.*

FORMED COWLINGS, PANELS, ETC.: *To your specifications, and of light metal alloys as required. Weldments and brazed assemblies may be under controlled atmosphere.*

PILOT EQUIPMENT: *Sample size equipment for development of heavy equipment.*

VERTICAL CORE BAKING OVENS • CONTINUOUS HORIZONTAL BAKING OVENS • BATCH TYPE CABINET OVENS • DRAWER OVENS

DETROIT SHEET METAL WORKS, 1301 OAKMAN BOULEVARD • DETROIT 6, MICHIGAN

DETROIT SHEET METAL WORKS

DETROIT - 6 - MICHIGAN

of external color that a product presents have much to do with its appeal, both immediate and permanent. Green was the color of man's earth, the trees, the plants and the water. Blue was the color of the sky from which the light and the rain came. These colors were safe and good; they had the meaning of many happy things for man.

From the beginning of man's understanding, red was observed and reaction was determined; fire was red, blood from a man's wound was red, and the sun was red. This color soon had the meaning of danger and excitement. The presence of all the colors was white. This is easily proven by going backstage in a theatre or opera house and noticing the multiplicity of lights surrounding the proscenium arch. These are covered with filters of gelatin of the primary colors—red, yellow and blue. The effect of all these colored lights, from the point of view of the audience, is one sparkling, pure white light, intense and overpowering. The color of the scenery and the color of the costumes is not altered by it; the colors rather give forth true intensity.

Applying Style and Color to Design of "Little Chef"

Good usage of color and finish are well exemplified in the "Little Chef." This electric toy range is manufactured by the Tacoma Metal Products Co. in Tacoma, Wash. It is 9-in. high, 13-in. wide and 7-in. deep—a very practical size for a child. It has many design and engineering features—new safety aluminum burner top with enclosed element, separate warming oven, real full control switches, oven thermometer, full

Spray painting parts for toy ranges.

insulation and rich baked enamel finish on the exterior. It has definite design quality, good color, attractive finish and sales appeal.

This toy range has heavy gauge construction and an attractive white baked enamel finish. It is welded and riveted for sturdiness and long life. It is necessary for a toy of this kind to have extreme durability, for it will be subjected to rough treatment by the child. The material is of the right thickness so that it will not bend or break; the pure white enamel finish will not discolor from the heat of the burners or the oven, and it will not chip off when bumped.

The oven and warming oven doors are well hinged; the metal door handles and the plastic switch control knobs are adequately fastened and of the correct size for a child's use. The door handles are first securely fastened to the doors and then sprayed and baked; this produces a unified appearance. This toy model is styled and engineered so

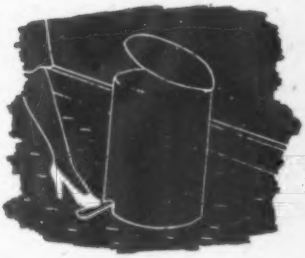
GET BETTER ACQUAINTED WITH

Vedoc

a better baked finish
for **STEP-ON DISPOSAL CANS**

HARACTERISTICS:

gleaming finish that retains its original lor practically indefinitely . . . Unaffected fats and greases . . . Highly resistant to st and long exposure to moisture . . . ard and tough (resists scratching and her kitchen abuse) . . . Easily kept clean d sanitary.



PPLICATION:

ly one coat is needed. Finish is sprayed on.

AKING TIME:

minutes at 300° F. or 7 minutes with infrared. (Optional schedules e available.)

All Vedoc finishes are developed for a specific use, then slightly varied to best fit into each customer's setup. Write today for more information about these "better finishes". Also, ask for your copy of the new booklet, *A Review of Product Finishing with Organic Coatings.*

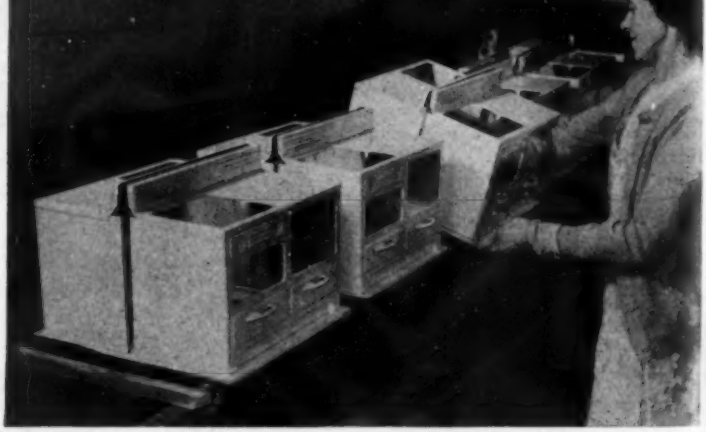
LIQUID PLASTICS DIVISION
FERRO ENAMEL CORPORATION
CLEVELAND 5, OHIO

that it will serve the needs of the child to the fullest extent; the child is able to cook and bake accurately and successfully.

A primer coat of white paint is applied and allowed to dry for five minutes; the finish coat of white appliance enamel is then applied. A conveyor takes the toy ranges on pallets through a long oven for 25 minutes of baking, after which time the toy range comes out with the enamel completely dry and baked on. This is similar to the process used by the appliance manufacturers of regular ranges and refrigerators.

The beautiful and attractive luster of the white finish is appropriate for this particular item. To this model is applied a decalcomania of the "Little Chef"—the trade mark. The figure and lettering of this distinguishing mark add the right amount of vermilion red, blue and yellow to the ensemble. The primary colors are the most attractive to children. This charming decal gives the adequate answer for enhancing the appearance of this product so that it will successfully sell itself in the color-conscious market of the present day.

Editor's Note—Hans P. Nelson is a graduate of the Illinois Institute of Technology, Armour College of Engineering (with a B. S. degree) and has taken graduate work in design at Northwestern University. He has been associated in the Industrial Design field for the past 12 years, during which time he has styled and engineered many outstanding items. Mr. Nelson is the designer of "Little Chef" products.



White enameled toy ranges coming from oven in which the finish was baked.

SAVE TIME WITH RED X

FUSION TYPE FINISHES

Go from raw wood to finish coat in about an hour without the application of heat . . .

. . . and that's only one of the many important advantages now possible through Red-X Fusion Type Finishes . . . Production costs are also reduced thru substantial savings in floor space, equipment, heating and labor costs . . . all these advantages without sacrificing quality.

With Red-X you can recoat immediately, or at any subsequent time. Each application from stain to final coat fuses with preceding or succeeding application . . . resulting in better color clarity and uniformity . . . more fullness and body . . . less shrinkage and swelling . . . greater toughness and durability.

Complete details in this free booklet. Write Reliance, 915 E. Kentucky St., Louisville 4, Ky.

Rely on Reliance

RELIANCE Varnish Company, Inc.
LOUISVILLE, KY. • CHICAGO, ILL.

...in The Finishing Room

To make a finishing room really safe we must recognize what and where the dangers are, and then counteract them.

BY JOSEPH HALPERIN

IN FACTORIES that make peace time products of metal and wood—those with which most of us are familiar—the finishing or painting department is considered the most hazardous insofar as safety and fire prevention are concerned. More safety devices, in proportion, are found in this department than anywhere else in the factory. Even with the constant vigilance by state inspectors, fire departments and insurance underwriters, the fire hazard remains, and some of the most modern factories have fires. A few simple rules will do much to keep employees on their toes and aware of their responsibilities.

Save Your Job and Your Factory from Disaster

Finishing materials and paints are highly volatile and flammable. An accidental spark may cause a serious fire, with disastrous results. Strict observance of the following ten safety rules will remove a great part of the danger.

1) Use only vapor-proof lights and explosion-proof motors in the finishing department.

2) Absolutely avoid the use of open flames, and restrict all smoking.

3) Keep down to a minimum the storage or temporary storage of flammable liquids in the finishing room. Better to make five trips to the fireproof storage room than ten trips to the doctor.

4) Keep spray booths, dip tanks and floors clear of all debris, bottles, cans, clothes and wiping materials. Too often workers will pile their working places with milk bottles, clothes and other personal property. Place used wiping rags, waste papers and refuse in metal drums or containers and wet down this accumulation. Remove this

Just the right material for your postwar finish!

Here's just the material for your post-war product finish . . . a tough piece of goods that will stand up under the most severe conditions. Protects as no ordinary lacquer will do! It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods. Available in either the clear Gloss Rubbing or the Satin Finish. Economical; gives plenty of coverage; dries quickly. Mar Proof Lacquer Sealer is recommended with it for the first coater.

Cannot be marred or scratched — just thumb nail it; try to scratch or mar it.

Send for
FREE WORKING SAMPLES

A Schaefer Mar Proof Lacquer finish will give you the best start in this most critical period. Use this tough mar proof lacquer, and obtain satisfaction right away. Working samples furnished without obligation. Write for them!

THE SCHAEFER VARNISH COMPANY, INC.
Louisville, Kentucky

MAR PROOF LACQUER

refuse from the premises as often as possible to avoid the possibility of spontaneous combustion.

5) Use only non-sparking tools for cleaning, or as production equipment.

6) Modern fire extinguishers should be installed. These should be as nearly automatic as possible. While the initial cost may look high, they do prevent small fires from increasing, and thereby hold losses down to a minimum. Regular and expert inspection of fire-prevention and fire-fighting equipment is necessary to make sure that this equipment is always ready and dependable.

7) All employees should be familiar with the fire-fighting apparatus. In a recent factory fire, all of the finishing room employees ran away at the sight of an extremely small fire in the stack of one spray booth. Luckily the foreman of another department came up and put out the blaze. At least two dependable people in the department should know what to do in case of emergency.

8) Keep spray booths, exhaust stacks and floors clean. A regular cleaning program should be set up and followed. A great number of fires start in the exhaust fan housing where the accumulation of spray materials has taken place.

9) Do not pile up material drums in the storage yard. Dispose of empty drums promptly and avoid an excessively large inventory of full and partly filled drums of material. It is far safer to get weekly shipments if possible. Too many fires have started in the storage yard.

10) Observe and follow all recommendations made by qualified inspectors and underwriters. Remember this: Their experience is far more extensive than yours and if you follow their suggestions, you will more than save the cost of any installation of equipment they may recommend.

Safety Rules to Protect Finishing Room Employees

Along with fire prevention, safety that prevents injury or harm to employees plays a big part. Safe employees will pay dividends in production. This calls for a bit of safety education and frequent reminders on the part of management. The following ten rules will be useful in any finishing department:

1) Set up a safety program and follow it religiously. A carefully thought-out plan will go a long way in preventing the occurrence and recurrence of various kinds of accidents.

2) The building and all equipment should be so designed and constructed that they comply with the law and provide a maximum of health and sanitation in the finishing department. The engineering departments of suppliers will assist in the proper choice of equipment. Any firm that deliberately "under-powers" their equipment and jeopardizes their employees' health will pay dearly in the end.

3) If any workers would be aided by wearing a mask or respirator, insist upon them wearing it. Lung diseases are common to finishing department employees. A few dollars spent for prevention goes a long way here.

4) Use protective creams and lotions for the hands, arms—and face if desirable. This safe, pleasant and invisible coating permits finishing materials to be removed readily after a day's work. *(To 86)*

10 REASONS WHY MYLAN FLOCK Improves Products and Widens Markets

Eye appeal is BUY appeal—and it's the *finish* that attracts customers.

Here are 10 of the many ways to use MYLAN Flock:

1. Fascinating surface effects in backgrounds and displays.
2. Flock screened on curtains and fabrics in smart designs.
3. Soft, colorful finish for radios, appliances, etc.
4. Smooth, slip-proof surface for phonograph turntables.
5. Gives toys realistic finish.
6. For all types of flags, banners and decorative papers.
7. Interior finish for automobiles and airplanes.
8. Surface coating for package designs, bottles and boxes.
9. Stencil designs in colors on furniture covers, etc.
10. Sound-proof and scratch-proof bases for file cabinets, desk objects, etc.

MYLAN FLOCK can be screened or sprayed on. Any color can be matched in RAYON, WOOL and COTTON FLOCK.

Write for samples and prices today.

"A Little Covers A Lot Of Surface"

MYLAN

MYERS-LIPMAN WOOL STOCK CO., Inc.
22 NORTH MOORE ST., NEW YORK, N.Y.
Pioneer Manufacturer Since 1875

5) Never remove finishing materials from your face, hands or body by means of chemicals. This may produce dermatitis.

6) Never clean an exhaust fan or spray booth while it is in operation. Too many fingers have been clipped doing this.

7) Guard all exposed motors, fans, pulleys, sprockets and close-up conveyor parts. Loose clothing can catch in these and cause severe damage.

8) Do not attempt to lift heavy drums without help. Willingness to show the boss that you can manage a heavy job alone may bring on a hernia which the boss will let you manage—alone. No department head will refuse help required to move heavy objects.

9) Avoid horseplay. The employee who goes in for a little fun while using dangerous equipment is inviting trouble. Many serious accidents are laid to the fact that someone wanted to have a little fun at the wrong place and time.

10) Good housekeeping will help prevent accidents by falling, slipping or stumbling.

By following these suggestions, the finishing room will have a fire prevention and safety program at little cost, but at a great saving to employees and management, once it is started and kept going.

Blue Print for the Future for Interior Decoration

The remodeled interiors of Bakelite Corporation's New York sales engineering and executive offices are an excellent indication of the utility and beauty that may be obtained when plastic materials are correctly applied. The skillful blend of unique design and lasting beauty achieved in these offices attests to the broad line of plastic materials offered by Bakelite Corporation to industry.

Throughout these new offices, Bakelite and Vinylite plastics appear as decorative laminates with rare and authentic wood veneer surfacing, resin-bonded plywood, molded elastomeric floor tiles, extruded elastomeric stripping, flexible film and sheeting, resin-fortified wood lacquers and resin-coated fabrics. These materials were carefully selected because of the extreme durability and beauty they afford, plus the new design possibilities they make possible. Their rich color, enduring finish; resistance to water, abrasion, cleaning compounds, and aging; and fire-retardent qualities are characteristics which offer to the interior decorating field materials with lasting "newness", and provide new standards of economical service.

Burtron Zook, Sales Engineer for Jensen Specialties, Inc.

Appointment of Burtron Zook as Sales Engineer and Directing Consultant is announced by Jensen Specialties, Inc., 9331 Freeland Ave., Detroit, Mich., manufacturer of Jensen "Dual Heat" infra-red ovens and Jensen conveyors. Mr. Zook has a rich background of engineering and sales experience. He has been actively associated with infra-red since the early days of the industry.

Burtron Zook is with Jensen Specialties as Sales Engineer and Directing Consultant

From 1935 to 1943 Mr. Zook was connected with a manufacturer of infra-red equipment in Ohio, as sales promotion manager and manager of infra-red sales. He then joined another firm where he worked on engineering and sales of conveyors and other materials handly equipment. He left this association in January 1947 to join Jensen.

The appointment of Mr. Zook is a part of Jensen's expansion program. Both key personnel and facilities are being widely expanded to better enable the organization to give prompt and complete recommendations to industry on all type of infra-red baking problems and conveying efficiency.

JONES-DABNEY

Since 1919

LOUISVILLE, KENTUCKY

INDUSTRIAL FINISHES

Lacquers
Varnishes
Enamels
Stains
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RESINS AND GRINDING LIQUIDS

"Syntex" Alkyds
Grinding Liquids
Varnishes
Special Resins

JONES-DABNEY CO.
DIVISION OF DEVOE & RAYNOLDS CO., INC.
Factories at
LOUISVILLE - NEWARK - DETROIT

Metallizing Baby Shoes

By
FREDERICK CLAUDE KRAMER
Chemical Consultant

SEVERAL firms are now specializing in the preservation of baby shoes by means of metallization. Stimulated by a large demand, and expanding due to continuous advertising, there are probably 40 or 50 companies in the United States working exclusively on the preservation of baby shoes. In Chicago alone there are as many as a dozen firms of this type.

While some customers prefer to buy the finished product without ornamental additions, there is a demand for extra features. Metallized baby shoes are often mounted on book ends or attached to ash trays or desk sets, or combined with plastic novelties. About half of the selling is done by direct salesmen, house to house; department stores and gift stores account for the remainder.

Leather shoes begin to deteriorate after about ten years, depending on conditions of temperature and humidity, cleanliness and quality of the material. Shoes made of fabric decompose much sooner. Old fashioned methods of enameling the shoes have definitely proved to be unsuitable because of the cracks that develop. Ordinary paint and varnish coatings are also unsatisfactory.

Modern processes of preservation are dependent on metallic coatings for lasting protection, Three different methods of metallizing and processing are clearly established, with variations according to the particular equipment and experience of the individual processor.

Electroplating

This is a comparatively expensive way of metallizing baby shoes. It demands more complicated apparatus and it also entails a considerably higher amount of skillful attention than other methods. The shoe is first sprayed with a lacquer composition which contains a metallic powder. Then it is subjected to an electrolytic bath for a few hours until the coating is completed.

The merits of this process are that it gives stable permanency, light weight (because in this method the inside of the shoe is not filled with plaster) and a generally pleasing appearance due to the real metallic finish.

Lacquer Spray Method With Filling Inside

The shoe is dipped into a stiffening solution containing lacquer. It remains in this solution anywhere

from two to 24 hours, depending on the absorptive qualities of the material. Then follows a drying period of 24 to 36 hours. Plaster is poured into the inside in order to solidify the product.

Some finishers prefer to apply the plaster before the shoe is stiffened in order to eliminate all soft spots. The advantage of using plaster at a later stage, however, provides a better blending of the plaster with the pre-conditioned material in the shoe.

The finishing touch consists of spraying the conditioned shoe with metallic lacquer. A clear top coating is applied to preserve the original color and to produce a glossy finish. The finished products are distinctive due to their substantial weight, the possibility of preserving the original color, and finally by the attractiveness of the mounts according to the initiative of the individual firm that has processed the shoes.

Other baby shoe finishers prefer to partially fill the shoe with plaster. The toe of the shoe is filled solid back to the instep, and the remainder of the inside surface is given a coat of plaster about 3/16-in. thick. Both inside and outside surfaces are given a spray coat of metallic lacquer. This is allowed to air dry. Then the shoes are sprayed with clear lacquer. This treatment reduces the weight of the shoe in comparison to those that are completely filled. The natural wrinkles are retained through filling, and the comparatively thin coating of plaster on the inside is sufficient to preserve the shape of the shoe.

Lacquer Spray Method Without Filling Inside

This method resembles the one previously described. It is less expensive though it requires more time. After being dipped into a lacquer sealer for one hour the shoe is hung up to drain and dry for two hours. The shoe is then worked into the proper shape by manual corrections. A drying period of 24 to 36 hours follows. The process of dipping into lacquer is then repeated and another drying period of 24 to 36 hours follows.

The final touch is given by an over all spray of metallic lacquer (bronze, silver, gun metal, gold, etc.). This coating has to reach even the smallest crevices of the inside.

Convertible Type Spray Gun

The Electric Sprayit Co., Sheboygan, Wisc., announces a model DS spray gun which is so designed that the internal nozzle, regularly furnished, is interchangeable and replaceable with an external nozzle and tip assembly, called the CKD Conversion Kit, which is sold as an accessory. Such conversion, it is claimed by the manufacturer, makes the versatility of this gun remarkable; and it assures rapid spraying of fast-drying materials with less cleaning of the nozzle parts.

Letters from Readers

Can Supply Non-Toxic Colors

In February issue of INDUSTRIAL FINISHING, page 92, a concern asked for the address of Bauman & Peiffer Mfg. Co. in order to obtain the address of the paint manufacturer that supplied them (Bauman & Peiffer) with non-toxic paint. We are interested in obtaining the address of the concern who wants the above information, as we make a non-toxic paint and feel that we might be of assistance in supplying their needs.—Kirken Chemical Co., Paterson, N. J.

Information supplied.—ED.

How to Test Finishes

We have read with great interest the article on "Tests to Predetermine the Performance of Furniture Finishes" on page 77 of your March issue, and wish you would send us six additional copies of the article.—H. P. & Co.

Fuzzy Substance—FLOCK

Recently we have observed in stores, silver trays for buffets and kitchen cabinets which have been lined with a fuzzy substance that appears to have been sprayed on a varnished surface. We would appreciate having information relative to the manufacturer of this type material, so we can learn more about the material and its applicationn.—E.S.C. (Purchasing Agent of a large concern.)

The "fuzzy substance" you ask about is probably FLOCK. Articles about the use and possibilities of this kind of finish appeared in September 1946 issue of this magazine (starting on page 40), and January 1947 issue (starting on page 78), and March 1947 issue (starting on page 41).

Our records show that three copies of INDUSTRIAL FINISHING are sent to your company every month, therefore someone in your organization should be familiar with flock finishing. If the copies just mentioned have not been destroyed or misplaced, we suggest that you obtain them and look over the articles and the advertisements of the flock on accompanying pages. Five full page advertisements on flock appear in March issue of I. F. For further information about flock, we suggest that you communicate with one or more of these flock manufacturers.—ED.

News Item Pulled Inquiries

Will you please send us a tear sheet of a recent publicity article you gave us in your magazine? We have had several inquiries on this, but haven't seen what you said, editorially, about our Polishing Machinery Catalog No. 55.—Hammond Machinery Builders.

The item—very brief—appeared on page 112 of Feb. 1947 issue. We are sending you a tear sheet of it.—ED.

Who Makes That Plastic Covered Wire?

Can you refer me to the maker of the "plastic covered wire," as referred to on page 11 of February issue?—G. R.

The author of the article says that, "The only information available is that this wire is called 'Plexon Pigtail', and that it was developed by Plexon, Inc.—but now I can't find Plexon's address."—ED.

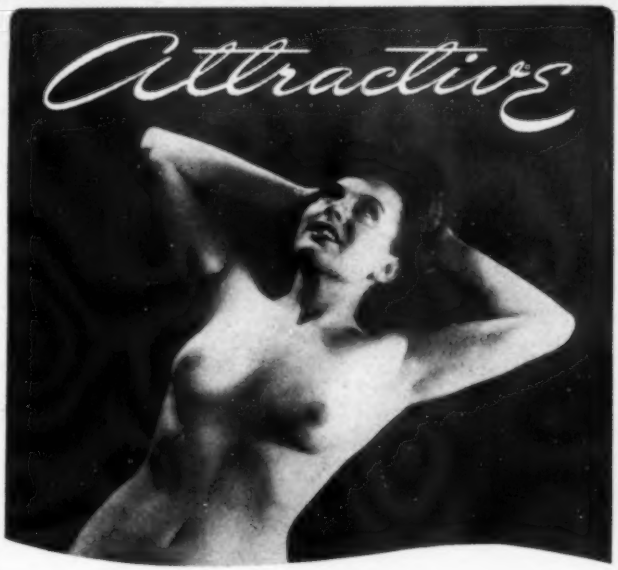
Infra-Red Baking Lamps

We are very much interested in obtaining infra-red lamps for paint baking. We thought that possibly you might have some information as to the availability of same.—K. M. A. (Metal Awnings).

Several of these companies advertise in this magazine. In a letter we are sending you their names and addresses.—ED.

Tumble Finishing

We have read with great interest your publication and would like to ask whether there is any literature on industrial finishing for woodwork. We are tinting and polishing small wooden articles such as artists' handles and small turned wooden knobs by a tumbling process. Further-



Distinctive finishes—skillfully prepared in our Creative Studio—have attracting qualities, too! They are eye-catching, sales-motivating coatings which subtly enhance the fine lines and desing of any product.

Our capable, highly-trained artists — men who realize the importance of individuality — have the know-how and experience so necessary in developing such finishes. They are never satisfied with "just about perfect". . . they keep working on an assignment until they have conceived a finish that is destined to do a real sales-winning job.

Avail yourself of their creative abilities. Send a sample of your product to be finished at no cost or obligation.

In Tempering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings

more we are dipping the same articles in cellulose lacquers and shellac varnishes.

It would interest us very much to learn whether any special literature has been published for this kind of job, and we would appreciate it if you could give us some information in this respect.—Plus Products Ltd., ENGLAND.

We have published a few articles on the subject and are sending you a reprint of one.—ED.

Heat Indicating Paint

Can you advise us of the names and addresses of manufacturers of temperature indicating paints? We believe we have an application where this type of material is indicated.—G. E.

Back in 1941, in February, March and April issues, we published something along this line in the Question & Answer Department. At that time we learned of a company that manufactured what they called "Efkalin Thermocolors," which are supposed to change color as the surface heat changes temperature.

These products were manufactured by Rogear Co. (Products for Problems) 11 Water St., New York, N. Y. (Attn: Mr. Robert Viegelmann). We do not know whether or not this concern is still in existence, or if they are manufacturing these particular paints.

Can some reader tell us something more specific and uptodate on this? —ED.

Paint for Glass Tumblers

For the past year I have been working in a hand decorating studio, painting frosted glasses, kitchen ware, etc. I am eager to go into the hand painted tumbler business myself, but first I must find a good paint.

The paint we used at the studio is only good for frosted glasses; it washes off plain glass. I have experimented with lacquers, oil colors mixed with clear varnish, etc., but none of them have proved satisfactory. It is absolutely necessary to have a paint that will not wash off or chip off.

If possible I want to stay away from a paint that has to be baked on. Do you manufacture a paint that would be suitable for this purpose? If not, any information you could give me as to where I might be able to obtain it would be appreciated.—W. C. K.

Who makes what this individual is asking for?—ED.

Make Flock-Coated Paper

We received a clipping from your January 1947 issue, which was a letter from the P. S. W. Co., inquiring about companies who manufacture flock-coated paper in rolls. We are processors of flock-coated paper in rolls, and would appreciate it very much if you could give us the full name and address of the company which is interested in this type of work.—D. & S. Processing Co., Clifton, N. J.

Information supplied.—ED.

Air Brush Stencils

We are subscribers to your magazine and would appreciate your help in solving the following problem: We need stencils for air-brushing designs on the curved edges of serving trays and metal items, but cannot find a concern who is making such stencils. Could you give us some addresses in New York, if possible, or othewise in any other city, where we could order stencils with our designs? —E. T. N. Co.

Try one of the following: Conforming Matrix Corp., Toledo Factories Bldg., Toledo 2, Ohio; Duggan Maskink Devices, 2030 W. Fort St., Detroit, Mich. These are about all we know of at the moment.—ED.

TelAutograph Corporation

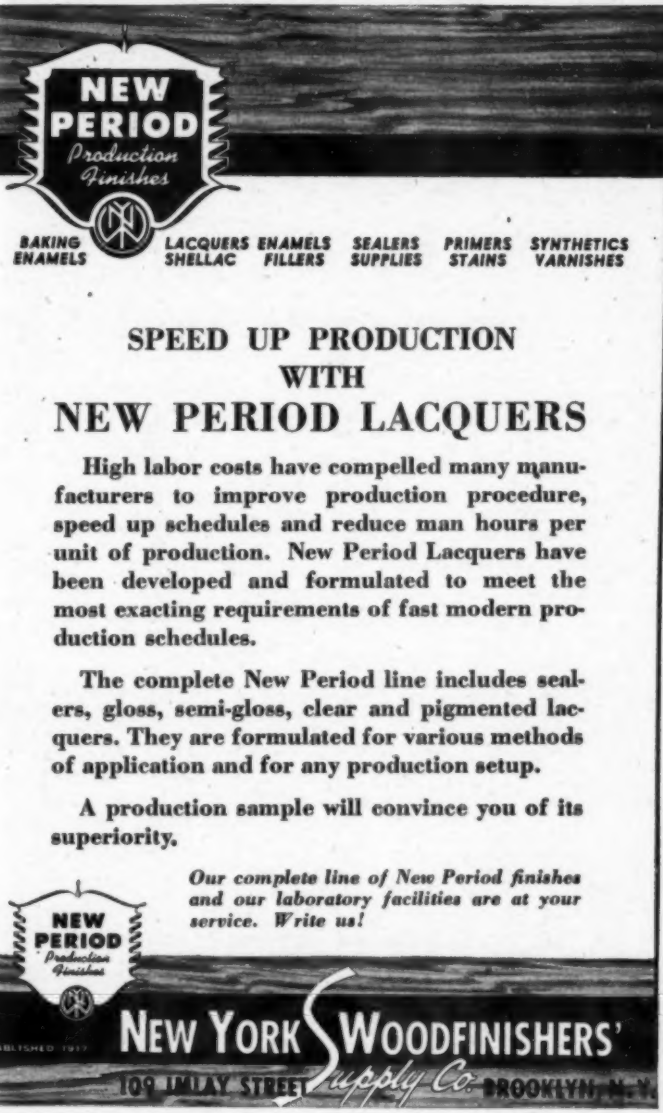
I was very glad to see our TelAutograph telescriber illustrated in one of your issues (Nov. 1946, page 55). However I'm wondering how Pitney-Bowes got into the caption? That firm, of course, manufactures postage meters but has no connection with our intercommunicating instruments.—A. H. D., Adv. Mgr. for TelAutograph Corp.

The error occurred in writing the caption. We are sorry.—ED.

Electrostatic Detearing

We have recently read a copy of your magazine, Industrial Finishing, and want to get the magazine regularly. We are interested in processes of detearing dip-painted objects and will appreciate any information you care to send us in this connection, or possibly the names of companies handling such processes commercially. —M. C. I.

Several artiles on this subject have been published in this magazine, the


NEW PERIOD
Production Finishes
BAKING ENAMELS
LACQUERS SHELLAC
ENAMELS FILLERS
SEALERS SUPPLIES
PRIMERS STAINS
SYNTHETICS VARNISHES
SPEED UP PRODUCTION WITH
NEW PERIOD LACQUERS
High labor costs have compelled many manufacturers to improve production procedure, speed up schedules and reduce man hours per unit of production. New Period Lacquers have been developed and formulated to meet the most exacting requirements of fast modern production schedules.
The complete New Period line includes sealers, gloss, semi-gloss, clear and pigmented lacquers. They are formulated for various methods of application and for any production setup.
A production sample will convince you of its superiority.
Our complete line of New Period finishes and our laboratory facilities are at your service. Write us!
NEW PERIOD Production Finishes
ESTABLISHED 1917
NEW YORK WOODFINISHERS' Supply Co.
109 IMLAY STREET BROOKLYN, N. Y.

latest one having been in June 1946 issue, beginning on page 31. Reprints of the articles can be obtained by writing the manufacturer of the equipment, Harper J. Ransburg Co., 1232 Barth Ave., Indianapolis 7, Ind.

"Tow" for Wiping Filler and Stain

We are interested in obtaining the name of the manufacturer or a source of the product called "tow." Any information you can give us on the product will be greatly appreciated. This material is used in the wiping of stains and paints.—F. Mfg. Co.

In a letter we are sending you the names and addresses of a few manufacturers of tow. Other materials often used for wiping fillers, stains and paints include burlap and plain ordinary wiping rags. One finisher points out that many fillers used on walnut and mahogany today are thinner and quicker drying than the heavy fillers formerly used on oak, and he simply wipes them with wiping rags, using a soiled rag for the first wiping and then following up with a clean rag.—ED.

Luminous Paints

We are interested in a luminous paint to be applied to new wood. The surface to be covered is about 12-in. long and 2-in. in diameter. Some of these cylinders will have a thin plastic sleeve put over them. This plastic is of the transparent type and comes in pastel shades.

We would like to know if it is possible to get a luminous paint that will glow in the dark when applied to this cylinder, and after the plastic sleeve is put over it?

We will appreciate any information that you may give us regarding the proper type of finish needed for the job; also, the names of manufacturers or distributors of same. We are in urgent need of this information and would appreciate an early reply.—S.L.

We enjoyed your recent article on luminescent and fluorescent paints, and would like to know where we can purchase same.—H. P.

Please send me the names and addresses of manufacturers who sell different kinds of luminous or luminescent and fluorescent paints, as described in September issue of INDUSTRIAL FINISHING.—R. F. Co.

There are several different luminous and fluorescent paints on the market, and we feel that some of them will meet your requirements. In a letter we are giving you the names and addresses of several concerns that manufacture or supply such materials. They will give you the exact information on how to use their respective materials.—ED.

Coating Plate Glass

An article in the June 1946 issue of INDUSTRIAL FINISHING on page 120, describing a new glass coating method developed by the American Optical Co., has attracted our attention. We would be interested in receiving full particulars about this process, but as we do not know the address of the firm mentioned we will appreciate it if you would help us to contact them. — Aktiebolaget Dulac, Stockholm, SWEDEN.

The American Optical Co. is located at Southbridge, Mass.—ED.

Paint Stripper

We have a problem in our plant and we are wondering whether or not you would have a solution? We have wire mesh trays 20x30-in. on which we place individual metal tile, 4¼x4¼-in. After we place the tiles on the trays we paint them—in a variety of colors.

Our problem is that the paint sticks to the 20x30-in. trays and we are not able to remove the paint from the trays. Do you happen to have a solution to this problem, or can you recommend something for cleaning these trays? We have around 2000 sets of trays and would like to have material that would clean them daily or weekly, because the colors of the paint on the trays causes trouble when we run them through the line after having been sprayed. Any help you can give us will be greatly appreciated.—H. H. Co.

There are several makes of paint strippers that could be used. In a letter we are naming some of them. You would probably want a mechanical setup wherein the wire mesh trays could be placed on a conveyor which would carry them through a stripping solution—or perhaps lower them into a dipping tank and then withdraw them after a suitable interval. A competent consultant on the job would be in better position to advise you exactly what to use and how to use it economically. —ED.

Alrose Chemical Co., 180 Mill St., Cranston, R. I., has issued a 3-page technical bulletin which reveals complete information about the merits and characteristics of a new synthetic detergent Alrosene 31. Copies of the bulletin can be obtained by request.

Remember Pearl Essence for

A Decorative Finish

MEARLMAID Pearl Essence is being used on hundreds of different products to produce a decorative and attractive effect.

Investigate the numerous advantages of a Mearlmaid Finish before you select the final coating. Its sales appeal and merchandising value are important.

THE MEARL CORPORATION

153 WAVERLY PLACE NEW YORK, N. Y.

ROSELLE N. J. EASTPORT ME.

MEARLMAID PEARL ESSENCE

Has High Reflective Light Value

For Dials Controls Instruments

WORLD'S LARGEST PRODUCER OF PEARL ESSENCE

Questions and Answers

Lacquer Checks Due to Cold Exposure

We are troubled with hairline lacquer checking due to cold exposure. Our products are mainly radio cabinets. Can you help us correct this trouble?—N. A. Co. (Canada).

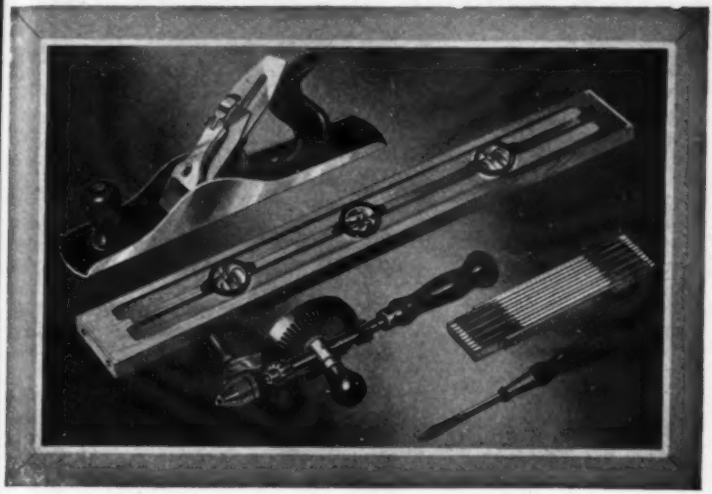
Fine hairline checking of lacquers on radio cabinets is likely to occur in very cold weather. It is caused by the unequal shrinkage of the lacquer film and the wood. For all practical purposes, wood does not change in dimension with temperature variation. Since lacquer tends to shrink more than wood at low temperatures, powerful internal stresses are set up which are relieved by cracking.

I suggest that you compare your present lacquers to others on the market. Ask your supplier to submit samples of lacquers having the best cold-crack resistance. Then make careful cold-crack tests on panels. In that way you can determine whether or not your present lacquers are at fault. It may be necessary for you to use lacquers that do not have quite the hardness and polishing qualities of your present materials.

If this does not locate your trouble look at moisture conditions. Changes in moisture content may cause dimension changes of 5% to 12% across the grain in solid wood. On well-made plywood this figure is considerably less. In radio cabinets the moisture content of the wood should be around 6% or 8% at the time of fabrication and finishing, since this is approximately the equilibrium moisture content under the conditions of use. If the wood is excessively dry, say only 2% or 3% moisture content at the time of finishing, it may cause trouble. As the wood picks up moisture under normal conditions it swells and puts an abnormal strain on the lacquer film. Lowering the temperature may then cause cracking, where otherwise it might not. Even if the wood is finished at normal moisture content, later exposed to high humidity for a long time, and then chilled, the lacquer film may crack because of the excessive strain induced by the combination of high moisture content and low temperature.—RICHARD BLACKWELL.

Don't Wax Skis at Factory

I've just read your answer to "Will Waxing Harm Lacquer Finish" on page 106 of the March I. F., and wonder why the C. L. Co. doesn't contact a few ski and toboggan users. It's been my observation that wax which has been applied on such products at the factory becomes as tacky as bubble gum on a suede shoe (ladies', of course) and that the true skier or tobogganist has to put in long hours and expend much elbow grease removing the old coating



"FINISHES"... *by Stanley*

What catches a craftsman's eye? Gleaming metal . . . keen edges . . . colorful handles with durable, glistening finishes?

All are important. That's why it was necessary to develop *special* finishes for the world's best-known line of hand tools . . . finishes that would withstand rough handling by greasy, gritty, sweaty palms. And Stanley specialists found the solution . . . again the "special finish for the special job", typical of the research for which Stanley is famous.

If you have a product, regardless of its material, requiring a finish with special characteristics, ask us about it. Stanley Chemical Company, East Berlin, Connecticut.

STANLEY

STANLEY CHEMICAL

INDUSTRIAL COATINGS

Lacquers Synthetics Japans Enamels

so he can apply his own special brand or "mix" to the sliding surfaces.

Wax on skis which must stand in stock for considerable periods of time will oxidize more than the lacquer or other finish applied to the wood by the maker, and thus will depreciate the appearance of the product rather than enhance it.

Rather than write to the wax makers, why doesn't the C. L. Co. write to some of the winter resorts and secure the names of the professionals there, so that they can obtain, first hand, data on whether or not wax is desirable—factory-applied wax, I mean? Dartmouth University has a ski club; the secretary of that organization probably could cover the club's reaction to pre-waxed skis. I believe the time spent in learning the skiers' wishes will pay the manufacturer dividends in increased sales and user commendation.—ELTON STERRET.

Finishing Lawn Furniture

Our particular problem has to do with finishing lawn furniture made of birch, maple and oak, in natural color. At the present time we are dipping in a sealer. In order to obtain a gloss, however, it is necessary to apply a second coat of varnish. This is done by spraying. Since we are not experienced in this work, we would appreciate any assistance you can give relative to quality finishing, as well as to economy in application.—X. Mfg. Co.

Your general procedure in applying a natural finish on birch, maple and oak lawn furniture is correct. It is especially good practice to apply a varnish-type penetrating sealer, which I assume is the type you are using. This sealer penetrates the wood slightly, and makes the surface layers more water-resistant and less likely to swell in a short sudden shower, although it will not prevent swelling during long periods of damp, rainy weather. The sealer coat also "keys in" subsequent coats of varnish, making the whole system more water-resistant and less likely to scratch off.

This sealer coat can best be applied by dipping. When dry (8 to 24 hours) it should be sanded lightly in preparation for additional coats. The sealer cannot be expected to give a glossy finish that will repel water very well; it is not the nature of such a product to do this.

At least one, and preferably two coats of clear varnish are required over the sealer coat. Be sure to use spar varnish for this work, because it is best suited for your conditions. A good spar varnish has gloss, is highly water-resistant, and gives best service in the weather.

The varnish coat or coats should be sprayed on, as you are now doing. If you plan to use two varnish coats, thin the first one slightly (about 10% to 20%). This first coat can be applied by dipping if you wish. Allow 24 to 48 hours for drying. By all means spray the final coat, at full body.—R. BLACKWELL.

Dust Collector Bulletin

A new 20-page illustrated booklet tells all about the American Air Filter Co.'s Type D Roto-Clone dynamic precipitator, a device particularly adapted to the dry collection of practically every type of granular industrial dust. Copies are free. Write American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

The lantern fly of South America keeps its hungry enemies at a respectful distance by wearing a frightful mask. A hollow sack of skin, the mask is colored and marked to look like the head of an alligator. Experiments have proved that this remarkable surface coating terrifies monkeys, birds, and lizards. Another remarkable surface coating is lacquer. Lacquer solves some terrifying industrial finishing problems. It scares your troubles away and invites customers. Lacquer is attractive, durable, easy to apply. It dries fast without costly special drying equipment. Your supplier would like to tell you about lacquer in more detail.

Bogey Bug

Commercial Solvents Corporation
17 EAST 42ND STREET, NEW YORK 17, N. Y.

CSC makes solvents and plasticizers, but is not a lacquer manufacturer.

Brush Mark Finish is Really Wanted

I am running a refinishing and decorating shop. Most of our work is to match samples of different articles brought in by our customers.

There is one finish that is giving me some trouble to reproduce, so I am writing to you to see if you can help me with this problem. The finish I am referring to is the antique white finish that simulates brush marks which stand out when glazed.

Up to now I have been applying this finish by spraying one coat of enamel undercoater, and then brushing on one coat of lead paint. It makes a fairly good job, but is not as clear cut as the finishes I have to match. The finishes that I have seen seem to be entirely lacquer.—D. R.

As far as I can learn from your inquiry, I believe that the finish you want is obtained through the use of an extra heavy material known as spatter paste. This material was designed for the casket industry, for use in pressure cups or tanks, and to be sprayed with a larger amount of air [than ordinary] in the pressure tank, but with very little atomizing air to break it up. The result shows a stippled appearance.

For the brush-mark effect the material is either sprayed on or brushed; then a coarse brush, whisk broom or grooming comb is used to give relief effects to the finish. Many varied effects are obtained in this way. New and unusual patterns can be tried by the use of different size brushes, combs, sponges, crumpled paper, rags, rough torn cardboard, or any medium that will leave a pattern. The depth of relief is varied by the viscosity of the paste used; the heavier the paste the greater the relief pattern.

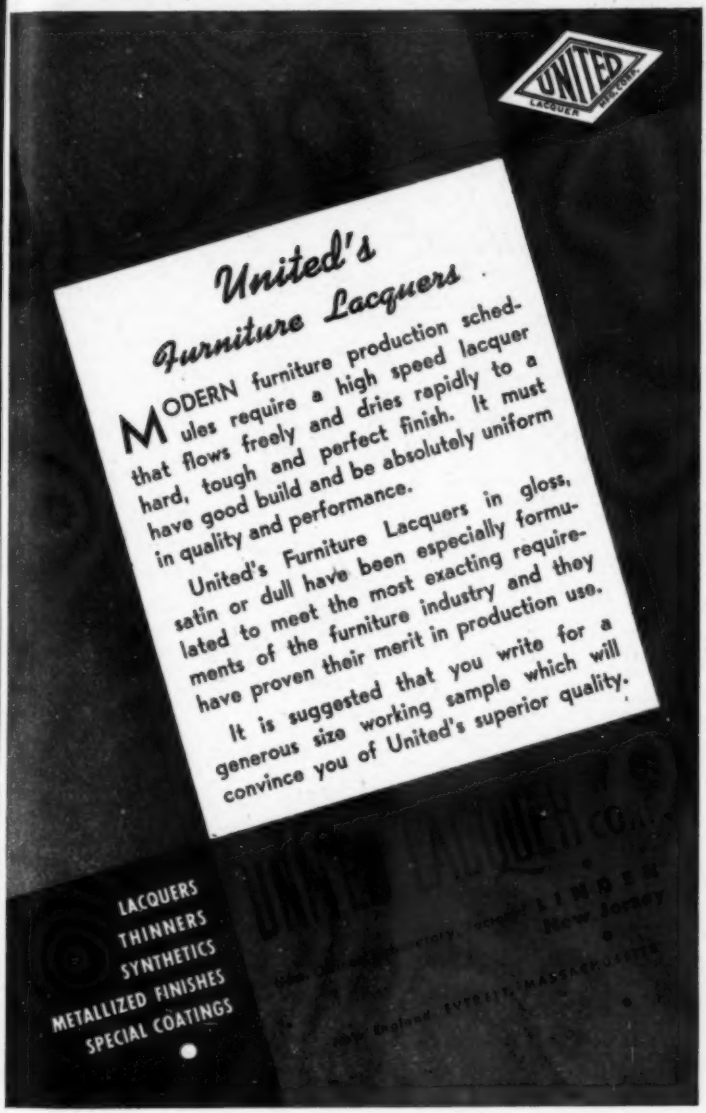
Several concerns can supply this material. If you need only a small quantity and would like to mix up your own material, you might experiment a little with it. You can make a workable product from regular flat wall paint. Add ordinary whiting, a little at a time, to the flat wall paint until the material becomes thick and heavy so that when brushed out on a flat surface the texture remains the same as when applied, and does not tend to level out. Let dry thoroughly and then finish in glazed effects.—EDWIN HOGSTROM.

This type of finish is usually produced by first applying lacquer enamel undercoater, as you are doing. The glaze is applied over this and worked out with a coarse brush. This operation produces the coarse brush marks characteristic of this type of finish. When the glaze is dry, apply a single coat of clear water-white lacquer to prevent the glaze from rubbing off.

It is not necessary to have a brush-marked surface over which to apply the glaze to get the brush-marked appearance. It is done solely by brush-marking the glaze, as I have just described.—RICHARD BLACKWELL.

New Bonderizing Catalog

A new catalog on Bonderizing, the treatment for metals which preserves fine finishes by anchoring the paint and retarding corrosion, is now ready for distribution. A letterhead request should be sent to Parker Rust Proof Co., 2177 E. Milwaukee, Detroit 11, Mich.


UNITED
LACQUER
United's
Furniture Lacquers
MODERN furniture production schedules require a high speed lacquer that flows freely and dries rapidly to a hard, tough and perfect finish. It must have good build and be absolutely uniform in quality and performance.
United's Furniture Lacquers in gloss, satin or dull have been especially formulated to meet the most exacting requirements of the furniture industry and they have proven their merit in production use.
It is suggested that you write for a generous size working sample which will convince you of United's superior quality.
LACQUERS
THINNERS
SYNTHETICS
METALLIZED FINISHES
SPECIAL COATINGS

Materials Supplies Equipment

"Resinite," a New Paint

A new household, auto body and boat paint said to embody results of exhaustive resin research conducted during the war, is now being produced commercially by the Resinite Chemical Corp., 2542 N. Lincoln Ave., Chicago, Ill.

Announcing it as a paint "for any surface, anywhere," claims are that the new paint is scientifically compounded with the same type of resins used by the Army and Navy on tanks, ships, planes, and other vital materials which had to stand up under severest conditions of intense heat, extreme cold, salt air, salt water, and in contact with acid-laden fumes. It has high gloss.

Steam Cleaning Unit is Portable

The new, improved Oakite-Vapor Steam-Cleaning Unit, for use in cleaning and paint-stripping a wide variety of industrial equipment and plant facilities, is announced by Oakite Products, Inc., 132F Thames St., New York 6, N. Y.

The unit, an enclosed-coil type, down-draft flame steam generator, delivers a hot vaporized spray in either wet or dry state under pressures up to 200-lbs. It generates sufficient steam-cleaning pressure to operate two steam guns simultaneously.

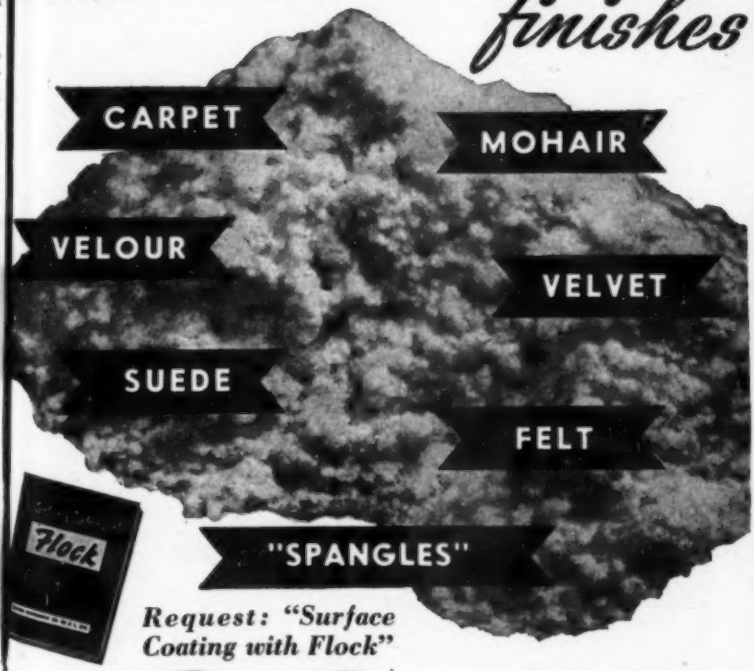
After initial throttle setting, unit operation is completely automatic. A down-draft flame in triple-insulated fire chamber provides rapid, economical steam generation (100-lbs. in only one minute). Standard dual-chamber steam gun is furnished with the unit; the cleaning solution is aspirated through the gun from a separate solution tank, by-passing the steam coils and totally eliminating coil-clogging by the cleaning compound. Ample reserve power of the unit provides silent, vibrationless operation.

Sponge Rubber Pad for Sanding Curved Surfaces

Machine sanding of curved surfaces (wood, metal, plastics, etc.) is now possible with the Sterling 1000 Portable Electric Sander, through the introduction of a new sponge rubber pad. With this flexible pad, convex and concave surfaces may be sanded easily and uniformly.

The success of the sponge rubber pad lies in its special design. The pad is faced with a 1-in. thickness of an oil-resistant cellular-type sponge rubber. The abrasive sheet is placed over the flexible surface of the pad in the same manner as is done with the standard sanding pad. The sponge rubber pad will fit all Sterling 1000 portable electric sanders now in use, and takes a 3 2/3x10 1/4-in. abrasive paper. It is a product of Sterling Tool Products Co., 363 E. Ohio St., Chicago 11, Ill.

Rayco Flock synthetic finishes



Request: "Surface Coating with Flock"

Rayon Processing Co. of R. I., Inc.

PIONEER PRODUCERS OF SURFACE COATING FLOCKS

55 Tremont St. • Central Falls • Rhode Island

COLONIAL PROCESS SUPPLY CO.
140 W. 23rd St.
New York 11, N. Y.

GRAPHIC ARTS CENTER
508 S. Main St.
Los Angeles 14, Calif.

ATLAS SPEC. MFG. CO.
3255-59 S. Shield Ave.
Chicago 16, Ill.

W. H. HALL
182 Jarvis St.
Toronto, Ontario

Corrosion Resistant Coating

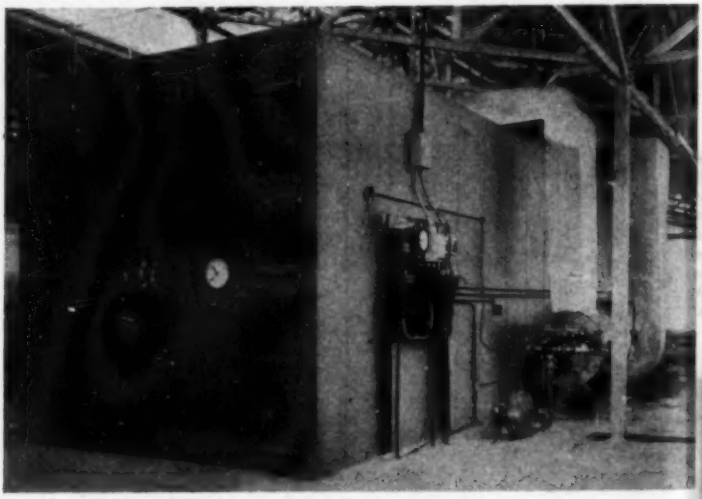
Dy-Nex-Co is a corrosion resistant coating formulated from scientifically blended natural and synthetic resins in a hydrocarbon vehicle. It has been in use for eight years and is accepted as a standard maintenance coating by major companies in varied industries. It has the following merits:

1) Requires no primer.
2) Provides a tough, durable film.
3) Adheres tenaciously to metals, brick, concrete, etc.
4) Unaffected by atmospheric temperature changes.
5) Resistant to chemical fumes, spillage, and their condensation.
6) Resistant to salt air, salt and fresh water, and brine.
7) Resistant to immersion in dilute mineral acids and alkalis.
8) Resistant to oxidizing agents, such as nitric and chromic acids.
9) Withstands dry heat temperatures up to 550° F.; water immersion temperature up to 180° F.

Dy-Nex-Co is a product of The Merchants Chemical Co., Elm Court, Stamford, Conn.

Oven Bakes Finishes on Transport Bus Bodies

Full-sized transport buses, completely assembled except for tires and gasoline tank, are now being finish-baked in a large Despatch oven recently installed in one of the plants operated by Industrias Metalicas S. A., of Monterrey, Mexico. The new oven, heated by a powerful forced convection heating system, is a rectangular



In the 40-ft. chamber of this oven, installed in Monterrey, Mexico, a fully assembled transport bus can be finish-baked. Each bus, complete except for tires and gasoline tank, is spray painted, then rolled inside the oven for baking. Oven is gas-fired and has automatic controls.

Compare Them . . .

No Cloudiness, No Distortion When You Use PERFECTION FLAT FINISH

Here's proof that PERFECTION FLAT FINISH outdoes ordinary finishes every way! At left, the glass covering the photograph is coated with stearated finish. Result: foggy, distorted image. The other section is coated with PERFECTION FLAT FINISH—clear as the glass on which it is applied.

You get the same lustrous results with the wood products you finish. Durable and economical to use, PERFECTION FLAT FINISH force-dries or air-dries with rich rubbed effect—without orange peel. Water-proof and liquor-proof, PERFECTION comes in a full range of long-lasting sheens. Write for a free sample today!

PERFECTION PAINT & COLOR CO.
Indianapolis 2, Indiana

Perfection SYNTHETIC FLAT FINISHES
WATER-PROOF LIQUOR-PROOF

batch-type unit with a chamber 40-ft. long, 13-ft. wide and 13-ft. high.

To save time and reduce handling the Mexican firm loads a bus body on two supporting dollies, applies the prime coat, then pulls the entire unit into the roomy oven chamber. After baking at 350° F. for one hour, doors in the opposite end of the chamber are opened and the load is removed. This procedure allows straight-line handling through the oven and simplifies loading. Final (finish) coat is baked at a slightly lower temperature, 300° F. for 30 minutes.

An overhead monorail is suspended from the top of the oven chamber to simplify handling when finishing other Industrias Metalicas products, such as steel office furniture, chairs and filing cabinets.

Heat source is a 1,000,000-Btu natural-gas-fired Despatch heater mounted on the floor outside of oven chamber. Heater is interconnected to a high-volume fan and specially sized heat distributing ducts equipped with adjustable ports to allow control of heat-flow. Heat ducts extend along side walls of oven while recirculating ducts are in the ceiling.

New Plastic Dip Coating Builds up Thickness

A new, inexpensive method for protecting equipment such as pipe, valves, fans and rotors and other intricately shaped equipment, is announced by the U. S. Stoneware Co., Akron, Ohio. The company's engineers have developed a new liquid Tygon formulation consisting of 100% solids and containing no thinners, solvents or reducers.

The new Tygon compound, known as Tygoflex, when applied by the usual techniques of dipping, spraying, brushing, etc., and subsequently subjected to heat for a short period, converts to a thick,

Builds up a thick protective coating that can be peeled off.

protective insulator resembling in appearance a glossy black rubber compound of medium hardness.

Tygoflex can be applied to any surface or material which will withstand the time and temperature involved in the fusion, such as metals, ceramics, glass, heat-resistant plastics such as Duralon. Thicknesses ranging from 1/8 to 1/4 in. can be built up in a single dip.

Tygoflex possesses the same corrosion-resistant properties as the basic Tygons, being resistant to all mineral acids, dilute or concentrated, alkalies, salts, oxidizing agents, and a limited range of solvents. Its upper-temperature limits are substantially above that of the other Tygon plastics, ranging up to as high as 250° F.

QUALAVITE

tested for Resistance

QUALAVITE has been formulated to produce a finish that will positively resist the ravages of alcohol, water, moderate heat, abrasion, impact and will not scratch white seven days after application. This super lacquer has been laboratory tested to stand the "gaff." It is hard and retains its flexibility and permanency indefinitely. QUALAVITE is as modern as the atom bomb. If you do not know QUALAVITE 100E, then your use of it will prove its efficiency. Write for quotations.

Manufactured by the Makers of

AMERICA'S FINEST PADDING LACQUER

QUALASOLE

QUALATONE PRODUCTS INCORPORATED

21 GAY STREET **NEW YORK 14, NEW YORK**

Furane Resin Surface Coating "Jet-Kote"

A new thermosetting plastic surface coating has been developed by Furane Plastics and Chemicals Co., 4500 Brazil St., Los Angeles 26, Calif., which is particularly well adapted to coating ceramics, concrete, and similar porous bodies.

This coating material, designated as "Jet-Kote", is manufactured from a new group of plastics obtained exclusively from furane derivatives. It does not contain oils or resin modifiers. It is a complete, liquid, thermosetting polymer which can be converted to a hard, durable film at room temperature. A glossy black surface is formed which exhibits good resistance to heat, as well as to water and miscellaneous chemicals, particularly strong acids and alkalies.

A heavy deposit may be laid in one brush coat, tending to hide surface defects, scars and scratches on relatively porous materials. The high specific adhesion for such surfaces insures the fact that the coating will adhere tenaciously to substances such as wood, "Masonite", ceramics and concrete under a wide variety of temperature and moisture conditions. The coating may be thinned for spraying purposes, if desired.

Stainless Steel Spray Booth Has New Conveniences

A new stainless steel spray booth which serves as a complete production unit for silver spraying objects in preparation for electroplating has been developed by the Monomelt Co., Inc.. 1611 N. E. Polk St., Minneapolis, Minn.

The unit is adapted to silver spraying plastic jewelry, plaster of paris and plastic figurines, composition toys, glass trays and dishes, wooden novelties, radio and automobile parts and similar products.

The booth is equipped with foot-operated water spray, air reducer, plate glass baffle to protect operator, air pressure indicator, safety valve and a rotating jig for holding objects to be sprayed. A powerful suction fan draws excess spray out of the booth through a duct directly behind the jig. A flourescent light is built into the ceiling of the booth to give adequate, non-glare illumination.

Constructed of stainless steel, the spray booth is impervious to chemicals that corrode ordinary

Adaptable to an unlimited number of uses, this stainless steel spray booth is a complete production unit, equipped with water spray, air reducer, air pressure gauge, safety valve, vacuum fan, flourescent light and plate glass baffle to protect operator. In photo above, booth is utilized for spraying plastic perfume caps before electroplating them.

PITTSBURGH INDUSTRIAL FINISHES include *complete range* of highest quality lacquers for wood and metal!

PITTSBURGH offers a wide range of lacquers for metal and wood to cover practically every industrial requirement. These can be used for spray or dip application.

METAL LACQUERS—*Synthetic type,* a high-quality coating for indoor or outdoor exposure. Apply direct to clean metal surfaces. Suggested for fine hardware, tools, machinery, metal furniture, store and office equipment. *Standard type,* for service where moderate durability is required. Good adhesion on cold-rolled steel, cast iron or other metal surfaces. Both types available in high and semi-gloss.

WOOD LACQUERS—*High-gloss type* has excellent build, high solids and good coverage on soft wood. *Semi-gloss type* can be used where high build and gloss are not required. Splendid coatings for toys, wood novelties, picture frames and miscellaneous wood articles.

Write for Industrial Lacquer Color Card which illustrates new attractive colors in which these famous finishes are available.

PITTSBURGH PLATE GLASS COMPANY, Industrial Paint Division, Department IF-4, 632 Duquesne Way, Pittsburgh, Pa. Factories: Milwaukee, Wis.; Newark, N. J.; Springdale, Pa.; Houston, Texas; Los Angeles, Calif.; Portland, Ore. Ditzler Color Division, Detroit, Michigan. The Thresher Paint and Varnish Company, Dayton, Ohio.

metals. Its smooth, simple design makes it easy to keep clean.

A typical application of the booth is its use in one plant for spraying square plastic caps designed to fit containers for a new line of perfume.

The caps are first sensitized by dipping into a solution of stannous chloride, followed by a water rinse and a final rinse with distilled water. Caps are then mounted on small, upright strips of brass which in turn fit into holes in a wooden frame on the jig.

The operator coats each perfume bottle cap with a thin layer of pure metallic silver. This is done with a spray gun which delivers a silver nitrate solution simultaneously with a reducer solution. In order to expose the various surfaces of the cap to the spray, the operator turns and tilts the ball-and-socket-mounted jig in any desired direction.

The caps are now electro-conductive and are ready for the final electroplating process which gives them a shining, substantial metallic finish to fit into the color scheme of the packaging.

410 Plastic Coating

According to a bulletin sent out by Plastic Coating Co., 4062 S. Vermont Ave., Los Angeles 37, Calif., 410 Plastic Coating (liquid) has the following merits:

1) The film produced by this coating has permanent flexibility and toughness.

2) Has excellent adhesion, without primer, to practically all types of materials.

3) Is resistant to acid, caustic, grease, oil, water, gasoline.

4) Very easily cleaned.

5) Easy to apply by spraying.

6) Very rapid drying.

7) Flame proof.

8) Available in clear and colors.

No. 410 is a thermo-plastic liquid which may be brushed, sprayed or dipped on any surface to give a permanent, colorful, tough, flexible and corrosion resistant coating. It contains no varnish, oil or paint. If kept in tight container it will keep indefinitely.

If a 410 finish should become severely damaged it is only necessary to thoroughly clean the damaged part and then apply additional coats. The additional coats penetrate into and permanently bond to the old material, thus giving a smooth unbroken surface which is just as good as new.

Here is a Mobile Canteen for quickly dispensing complete hot meals or snack type lunches to 40 or more people. Prepared food and drinks (hot or cold) ready for self service come directly from kitchen to consumer, in individual stainless steel containers. A product of Mealpack Corp. of America, 152 W. 42nd St., New York, N. Y.

THE NAME PLATE

THAT JAMMED UP A PRODUCTION LINE

It all seemed so simple. The problem? Working out a color scheme for a name plate to harmonize with the equipment it was to identify.

One experiment after another was tried. All failed. Meantime, thousands of dollars of production were being held up.

Until . . . you've guessed it — until DURALAC was called in.

Duralac not only came through with flying colors (meaning the right color in this case) but was rewarded with the additional assignment of making the finish for the product itself.

Moral: It takes a specialist to do a specialized job. Maybe we can help you too. There's a way to find out. Write . . .

SEA-LAC

DURALAC CHEMICAL CORPORATION

LISTER AVENUE, NEWARK 5, N. J.

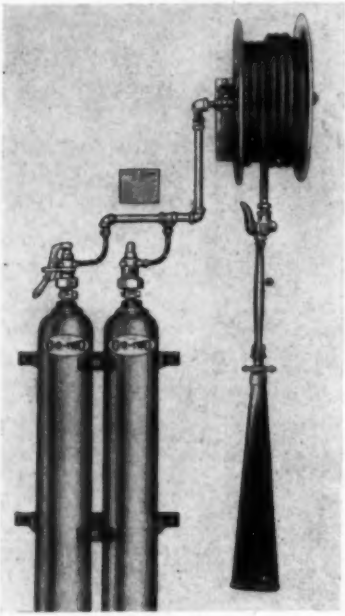
Carbon Dioxide Hose Reel

A new and improved light weight hose reel of the shock-proof type for carbon dioxide systems, available in capacities from 50 to 200-lbs. or more of carbon dioxide, is announced by the C-O-Two Fire Equipment Co.

This stamped brass and chrome plated hose reel may be fitted with ½-in. high-pressure hose of any length up to 125-ft., or any length up to 100-ft. of ¾-in. hose.

The hose reel and discharge horn may be installed adjacent to the C-O-Two cylinders or at a remote point.

The handle of the fire fighting nozzle is equipped with a "squeez-grip" valve for controlling discharge of the carbon dioxide gas when working around a fire.



A fire fighting setup for instant use.

For further information, write to the C-O-Two Fire Equipment Co., P. O. Box 390, Newark, N. J.

Rust Remover and Rust Preventive

Two new anti-rust products are announced by the Yosemite Chemical Co., 1040 Mariposa St., San Francisco, Calif. The two products, both liquids, are Y-3 Rust Remover and Y-600 Rust Preventive. Between them, they form a thoroughly effective anti-rust and anti-corrosion program for almost any industrial use.

Y-3 Rust Remover, a clear, non-oily fluid, may be applied by sponging, dipping or brushing. It removes rust or stain from ferrous or non-ferrous metals in from 3 to 15 minutes. At the end of this period, rust can be wiped off with a damp cloth. Abrasives are not necessary except in the case of deep rust-pitting. Depending on time allowed to stand, Y-3 remover will leave a clear, invisible film, or a darker, more porous film that forms one of the most superior paint bonds yet developed. This rust remover also contains a powerful anti-rust or anti-stain agent, which prevents rusting for periods up to 10 days.

For maximum rust prevention, Y-600 Rust Preventive is offered. This fluid may be sprayed, dipped, painted or sponged onto metal surfaces—dry or wet. It dries within six hours, leaving a microscopically thin protective film which is physically combined with, and bonded to, the metal. This product contains a superior wetting agent which not only displaces water but allows preventive

o·rig i·nal (ô·rĭj′ĭ·năl; -n'l), adj. 1. Of or pertaining to the origin or beginning; first in order or existence. 2. Not copied, imitated, or reproduced; underived; new; firsthand. 3. Independent and creative in thought or action; inventive. -- Syn. Primary; initial; primordial; innate. See NATIVE.

When defining "original", Webster couldn't have been talking about anything but . . .

PORCIFLEX

the *original* one-minute bake

Fits us to a "T"! We created the original one-minute bake to fill industry's need for a faster finish to speed production and cut finishing costs.

There are LOTS of speed-bakes now—proof of the way Porciflex has swept the country. But for your own needs, why not follow the common sense rule of insisting on the original—the first—one-minute bake? As the originator of the speed finish, the H. V. Walker Company naturally has a greater background of experience and "know-how" in this field.

And the best possible testimonial to the worth of this fine product may be found in the many pleased customers who come back again and again for more Porciflex.

H. V. WALKER CO.

ELIZABETH 4, NEW JERSEY

"A Symbol of Quality H.V.W. *in the Finishing Field"*

chemicals to enter the pores of the metal. The resulting film is thus elastic and uniform, even preventing rust around deep nicks or scratches in the treated surface.

Y-600 is equally effective for preventing corrosion and stain on non-ferrous metals. It effectively halts unsightly tarnish on polished copper, bronze, brass, monel or chromium plated surfaces. It forms a hard, heat-resisting film which is all but invisible on engine parts, fittings, or other machine gear. High humidity and high machine temperatures do not affect Y-600 Rust Preventive.

Booklet on Product Design

How a manufacturer can improve his products, operation and profits is revealed in a new 20-page illustrated booklet, "DFI Planned Products Service," just off the press.

This booklet describes the 12 integrated industrial services offered by Designers for Industry, Inc., Cleveland, a leading design and engineering organization. These services include: Industrial Design, Development Engineering, Experimental Manufacturing, Production Engineering, Industrial Engineering, Management Counsel, Market Analysis, Technical Surveys and Industrial Research.

In addition to showing photographs of many products that exemplify the skill of Designers for Industry, this booklet contains case histories showing results obtained through Planned Products Service.

For a copy of this booklet, write Designers for Industry, Inc., 2915 Detroit Ave., Cleveland 13, Ohio.

Pre-Paint Cleaning and Treatment for Metal

Oakite Products, Inc., 132 F Thames St., New York 6, N. Y., announces the recent publication of an illustrated 6-page service report providing full particulars and valuable new data on the Oakite CrysCoat Process for precleaning, conditioning and rust-inhibiting ferrous metal surfaces prior to organic finishing. This method is said to reduce rejects, save valuable production time and provide complete safety to equipment and personnel.

The manufacturer's service report tells how this process employing Oakite CrysCoat No. 87, an acid-type material specially designed for use in pressure-spray metal-washing machines, facilitates the preparation of ferrous metal surfaces for improved adhesion of paint, lacquer, enamel and varnish coatings by performing three important functions in one operation: 1) Its effective detergent action removes grease, light machining oils, drawing lubricants, spinning compounds, fingermarks and shop dirt from steel and iron surfaces; 2) it conditions metal surfaces as it cleans by imparting a microscopic, crystalline phosphate coating that provides improved grippage of paint and other organic finishes; and 3) it inhibits ferrous surfaces against rusting between production operations or prior to application of organic finishes. An added advantage claimed for this process is its ability to localize corrosion when painted surfaces are marred or broken.

The service report features valuable, new data on methods of application, working concentrations, pH determination and rinsing procedures; provides recommended operating temperatures, helpful suggestions, etc.

Despatch Appoints Six New Territorial Men

National sales facilities of Despatch Oven Co., Minneapolis, Minn., have been expanded by the appointment of six new territorial men.

John Wright of the Air Comfort Associates, Inc., 412 Stanley Ave., Evansville, Ind., and George W. McDaniel, 325 Bankers Trust Bldg., Indianapolis, will handle sales in their respective areas.

Frederic and Baker, 826 Ardis Bldg., Shreveport, La., will have the Louisiana-Arkansas region; William T. Day of the Day Engineering Co., 300 Essex Ave., Narberth, Pa., the Pennsylvania-Delaware region, and DeWitt Gunsolus, 267 E. Paces Ferry Rd. N. E., Atlanta, territory including Georgia, South Carolina and Florida.

Northern California has been assigned to W. C. Matheson, 151 San Bruno Ave., San Francisco.

Book on Static Electricity

Static electricity can be a serious fire hazard wherever inflammable materials are used. What causes it, where and how it is dangerous, and how to guard against it are explained and illustrated in a new 1947 50-page book compiled and published by the National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. Price of this timely and valuable book is only 50 cents.

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for superior quality and best results

LIQUID SPIRIT STAINS—WOOD DYES—OIL STAINS

for every purpose and wood texture

non-grain raising—uniform in

quality, shade and color-tone

penetrates wood pores evenly—

Send coupon for color cards and information.

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Gentlemen: Please send the following:

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COLOR CARDS

..... Aniline Stains
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..... Paste Fillers
..... Bronzes
..... Wood Cement
..... Brush Lacquer
..... Spray Lacquer

Booklets Catalogs Circulars

Bulletin on Truck Decals

"Ads on Wheels," the first complete guide book to truck decal sign advertising ever published is being prepared for free distribution to fleet owners, public carriers, equipment makers, merchants, maintenance men and advertisers by the Meyercord Co., 5323 W. Lake St., Chicago 44 Ill., manufacturer of decalcomania.

This new Meyercord booklet, showing scores of truck decals and trucks in full color, describes how and where to use decals to utilize the advertising space on trucks. Famous brand names, product reproductions and trademarks parade across its 20 colorful pages.

Illustrations demonstrate different aspects of truck decal advertising as well as safety signs and other devices. Service signs and identification insignia are also presented for farm equipment, gasoline pumps and oil stations, railway cars and locomotives, airplanes, buses, and taxicabs.

Chlorine Compounds for Solvents and Cleaning

A new booklet, "Organic Chlorine Compounds," presents the latest data on 12 chlorinated compounds which are industrially important as solvents, fumigants, and chemical intermediates. It is one of a series of publications on the various groups of aliphatic organic chemicals. Information is given on the properties and uses, specifications, solubilities, comparative stability to reducing and oxidizing agents, and constant boiling mixtures.

The booklet also contains charts showing the variation of certain properties with respect to temperature. This publication will prove a useful reference source for research chemists, laboratory technicians, and purchasing agents. Copies may be obtained by writing to Carbide and Carbon Chemicals Corp., 30 E. 42nd St., New York 17, N. Y., and asking for Form 4769.

"Prufcoat" Specifications

New Application Specifications are now available that give proved methods for corrosion-proofing metal and masonry surfaces with Prufcoat Protective Coatings. The new Prufcoat Application Specifications give detailed information concerning the preparation of metal and masonry surfaces (floors, walls, structural steel, pipes, tanks, ducts, machinery and equipment), as well as the application of Prufcoat Protective Coatings. Copies of these new Standard Prufcoat Application Specifications can be secured by writing Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass.

"Finishes for Aluminum" Two Books, $2.00

Aluminum offers many valuable and interesting combinations of surface finishes for enhancing its appearance. To indicate some of the important possibilities, Reynolds Metals Co. has published "Finishes for Aluminum" in two volumes.

The first book, Section 1, is wire bound and contains 108 pages devoted to 8 cleaning treatments, 17 mechanical surface finishes, 15 chemical surface finishes, 11 electrolytic oxide treatments, 12 electroplated coatings, 7 paint application methods, 7 paint coatings, ceramic coatings (vitreous enamels), special finishes such as silk screen and sprayed metal finishes, and concludes with a discussion of various controls and tests for finishes.

The second book, Section 2, supplements this information with 120 pages of shop data on materials, equipment, solution preparation, procedure and control for more than 30 of the most widely used finishing processes. This book is supplied in a separate loose-leaf binder and new and revised bulletins will be issued at intervals to keep this information up-to-date.

Reynolds "Finishes for Aluminum" (two volumes) thus supplies to users of aluminum a complete and continuing service unique in the finishing field. It offers an effective means of keeping up with the many advances being made in this phase of aluminum processing. Copies are available from Reynolds Metals Co., Dept. 27, 2500 S. Third St., Louisville 1, Ky. Price $2.00.

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are

es, remarkably

flexible!

We invite you to make this test yourself: Come in, write or phone for a sample of these FLEXIBLE finishes and a flexible metal strip. Spray the metal with one of these finishes . . . Not a "pore" or "crater" will mar the surface . . . and it will dry rapidly. Now twist the metal until it breaks. The finish will not "scale" or peal off. Not even finger-nail pressure will succeed in lifting the film . . . WHY? Because ALAKA LABORATORIES have developed lacquers that are more flexible than flexible brass and other metals for makers of nameplates, vanity cases, hairpins, novelties and stampings.

Try ALAKA FLEXIBLE LACQUERS. You'll find the finish not only more flexible but harder than any you have ever used before.

Custom Tailored Finishes

TO FIT YOUR REQUIREMENTS

LACQUER & CHEMICAL CORPORATION

218 FORTIETH ST. BROOKLYN 32, N.Y.

Finding Out What A Man's Good For

Prompted perhaps by the paragraph headed "What A Man's Good For" on page 11 of Feb. I. F., I've typed out "Cashing in on Curiosity", which covers sketchily the manner in which we built up our working force when the draft and industrial competition for workers made the lot of the small operator especially hard. But I find that a man's curiosity will often betray —advertise is better—the natural aptitude of the worker when he lacks words and experience to make application for such work stick with the management. Of course, I don't intend to imply by my article that every watcher at a construction job is a potential architect or contractor.

LARGER COMPANIES, with integrated employment or personnel divisions, can rely on the screening effect of aptitude tests for determining the usefulness of job applicants. They also have the advantage of publicity accruing to their organizations on account of their size and general reputation, and thus they get the best among the men who have been let out elsewhere or who have decided to change jobs because of personal reasons.

Neither of these aids to replacement of workers is open to the small plant which often is located in an out-of-the-way place and not widely known. Employees are generally drawn from the immediate neighborhood or are brought in by friends already on the pay roll. Here hiring is largely a matter of personal opinion or judgment of the plant foreman or owner-manager.

Usually the small plant has to contend with a labor turnover percentage which is much greater than the larger concerns in the same area, although once fitted to a job the man in the small plant has more incentive to stay than has a similar cog in a big machine.

In selecting men for our finishing plant, which was originally set up to recondition 55-gallon steel drums for Government agencies, we took applicants in through the the receiving gate, accepted their own estimates of job qualifications —and saw the spoilage mount. By a process of weeding out, transferring, and selective training within the group, a force was finally developed which made ours a "must visit" item when other executives in the same business came to town. It was quickly learned that transfers at the man's request were more often prompted by the better pay offered in the job asked for, than by a personal feeling of qualification for the place.

Here the matter of curiosity came in. In circulating through the plant, which was necessary to maintain quality and quantity of output, time was taken to watch the men during their leisure periods. It was through this observation that, for instance, the best spray man in the organization was discovered. The man, a swarthy Latin-American, had been hired for the shipping department—largely because of a strong back and long arms which combined to place drums in the cars with a minimum of contact with others. This man could barely sign his name, spoke broken dialect and mixed little, even with his compatriots in the crew. Whenever there was a slack period in the shipping room, Jose was to be seen hovering around the door to the painting department, his nose

MASSEY-HARRIS, LTD.
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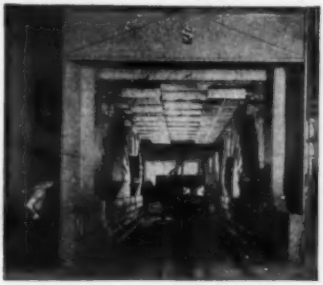
BURDETT
(The Original)
INFRA-RED GAS BURNER

DRY 4 COMBINES PER HOUR



Recently praised by Fortune Magazine for its extraordinary efficiency, Massey-Harris, Ltd., Toronto, has now installed two Salem Engineering ovens equipped with Burdett Infra-Red Burners, thus joining thousands who know . . . Burdett Infra-Red Burners save from 33⅓% to 76⅔% drying time.

This oven is 60' x 15' x 15½', drying 4 combines, approximately 33,200 lbs. of steel, per hour at 190°F. Floor conveyor speed is 1.7 feet per minute.

These revolutionary results can apply to your drying, baking, cooking and similar processes. Ask for complete data.

3425 West Madison Street, Chicago 24, Illinois

BURDETT MANUFACTURING CO.
Infra-Red Gas Burners

The
VARNISH PRODUCTS COMPANY
Makers of . . .

CEL-U-LAK
LACQUERS and ENAMELS

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Bronzing vehicles, adhesives and other specialties for the industrial finishing of wood, metal, ceramics and plastics.

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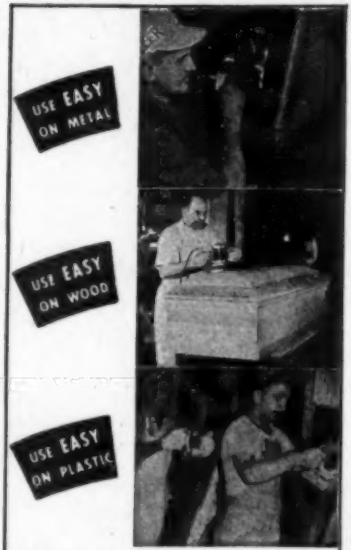

USE EASY FOR A *Better & Faster* FINISH THAN BY HAND!

For sanding, rubbing, polishing, scuffing or "feather-edging"—on CURVED or flat, WET or dry surfaces—USE THE EASY. This light, rugged shop tool with back and forth, straight line action has proved itself in thousands of shops.

Write for Literature or See Your Jobber

Easy
RECIPROCATING
ELECTRIC SANDER

DETROIT
SURFACING MACHINE CO.

7434 W. Davison, Detroit 4, Michigan

inside a booth if the operator did not object too forcibly.

Finally an opportunity arose which gave Jose a chance at a spray gun. Almost from his first drum he turned out work that passed the keen eye of Army inspectors, and his coverage per drum dropped below that of the best man of any of the three shifts—meaning, of course, that he had a minimum of overspray. Later, although he said he had never painted he proved to be a master with the brush, cutting a curve or striking a line with machine-like accuracy.

This same checking on a man's interest led to transferring the day shift timekeeper—a merchant marine veteran who has lost a foot and hand when his ship was torpedoed—to become foreman of the loading gang. Still another shift was moving the foreman of the third (graveyard) gang into the office where he proved to be an expert at keeping tallies and records, and—most important of all—having them check regularly with the inspector's records. He got less pay when first moved, but he soon earned more.

None of the three men would have applied for the job into which he was eventually fitted, nor would a standardized test have been apt to reveal the talent which, in each instance, first manifested itself in intelligent watching of others do the work into which he best fitted.

Since then two good men have been secured through the "waiver route" from other plants in the same business, both having been condemned as worthless loafers because they were frequently observed standing and watching when they had no work at their regular posts. —ELTON STERRETT.

LET VORAC HELP YOU

With your special finishing problems:

Is your job different? Do ordinary lacquers, varnish and finishes let you down? That's where VORLAC special formulas can often step in and save you time, trouble and money.

VORLAC finishes are individually formulated to meet the special needs of scores of different industries.

Need a finish especially designed for walnut? One for oak? One for pine, or some other wood? VORAC has them all.

Need a lacquer that hides defects in wood? VORAC has it.

Need a metal coating that's not affected by weather, salt, gasoline or oil? Or a brass lacquer that perspiration can't hurt? A toy lacquer that can really take it? A finish for some special rubber, leather, linoleum, cement or glass problem? VORAC has these, too; and many others.

Write VORAC Today!

It's easy to get VORAC'S expert help on your problem without any obligation. Just write on your company letterhead, stating as specifically as possible what your finishing problem is. From their hundreds of manufacturing formulas, VORAC engineers will send you a free sample of a protective coating designed especially for your job. Write:

Vorlac
BRAND

INDUSTRIAL FINISHES

THE VORAC COMPANY

RUTHERFORD, NEW JERSEY

APPROVED FOR ORGANIC VAPORS

The NEW M·S·A CHEMICAL CARTRIDGE RESPIRATOR

OFFICIALLY APPROVED BY THE U. S. BUREAU OF MINES

This new M.S.A. Respirator provides respiratory safety for industrial finishers against harmful paint spray vapors, degreasing solvents, paint removers, etc. New floating cushion facepiece assures easy comfort; flat exhalation valve lessens breathing resistance; chemical cartridges are quickly replaceable. Write for details!

MINE SAFETY APPLIANCES CO.
BRADDOCK, THOMAS AND MEADE STS.
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District Representatives in Principal Cities

"PLAS-STIK" No. 100

...The New Wood-Filling and Patching Compound

- SPREADS LIKE BUTTER
- MANUFACTURED IN COLORS
- TAKES ALL STAINS
- MINIMUM SHRINKAGE
- ECONOMICAL

WRITE *Dept. E for Samples and Further Details*

Minnesota Mill Works

"PLAS-STIK" PRODUCTS DIVISION
2364 Hampden Ave., St. Paul 4, Minn.

Random Comment on the Industrial Scene

(Continued on page 11)

beryllium, vanadium, and from the vapors of osmic acid.

If industrial processes absolutely require the use of dangersous materials, adequate exhaust systems for gases and vapors should be provided, along with the compulsory use of masks or inhalators.

* * *

Smokeless Heating—Production of smokeless coal heaters, to meet rigorous smoke prevention ordinances of various cities, is announced by Harry T. Worthington of the Moore Corp., Joliet, Ill.

The heater embodies a new principle by which all fuel gases are consumed. It is declared that average use of coal in the new heater is 70% to 80% efficient, compared to 30% to 45% in conventional designs. Research and development work was in collaboration with the Battelle Institute, Columbus, and the Bituminous Coal Research Institute, Pittsburgh, both engaged in evolving more efficient methods for heating with coal.

Almost 650 experiments and changes in design were made before first models were placed on sale. Results: More heat, less cost, no smoke.

Models for Planning Production Layouts

Visual Production Planning, Inc., 5102 Butler St., Pittsburgh 1, Penna., announces a complete line of materials-handling equipment, built to ¼-in scale. These planning models consist of various types of belt and roller conveyors, rack conveyors, transport, motorized and hand trucks, shelving, bins, tote boxes of all sizes; as well as palettes, skids and skid boxes in most standard dimensions.

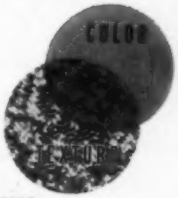
These are used in connection with planning small scale layouts of modern prodution departments.

hour saver...dollar maker

For large areas or small . . . for castings, forgings, stampings or sheets . . . the production economy of one-coat *Wrinkle* finishes is traditional and real.

Wrinkle coatings, in a variety of controlled textures and an unlimited range of colors, covers weldments, scratches, bubbles, tool marks, dents, with a single application by spraying or dipping, without primer coat and with absolute minimum of surface preparation.

And *Wrinkle* is sold by more than 200 manufacturers of industrial finishes. One or more are near you. If you aren't already using *Wrinkle*, try it today.



* Chrysler Airtemp all-year air-conditioning furnace, Specialty Manufacturing Company scotch tape dispenser.

NEW WRINKLE, INC. • 137 N. PERRY ST. • DAYTON 2, OHIO

Testimonial:

". . . customer demands insisted on *Wrinkle*. Our experience has proven *Wrinkle* is far more durable . . . diffuses light and prevents glare . . . any and all surface irregularities in castings and sheets completely covered . . ."
—Brush Development Company
Cleveland, Ohio

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Distributed Monthly to finishing room and paint shop foremen, production superintendents and company officials of metal-working, woodworking and miscellaneous industrial plants where production cleaning and finishing are major operations in parts and products manufacture.

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Editorial

When "Send a Sample" Proves Wasteful

A concern manufacturing toys recently went out of business after less than a year's operation. Knowing that several desirable machines were for sale, our company sent a buyer to try to purchase them, along with any other usable materials. Among the latter was their entire remaining paint supply which was turned over to me.

Upon checking it over I must confess I was rather startled to discover that, although the entire lot amounted to only 35 gallons there were, 15 samples of red baking enamel five of white, and one of black. Two of these were gallons. The rest were in quarts, and most of them had not even been opened. Collectively they represented most of the paint industries in this locality. If this fellow had missed any it was not his fault.

Knowing some of the salesmen who had furnished these samples, I asked them about this case and about the sample situation in general. They assured me that although this was an extreme case, it was by no means unusual, nor was it the worst. Although reluctant to call it a racket, to a man they agreed that the sample business is a pain in the neck.

Although a few companies try to avoid submitting samples, to the vast majority it becomes a problem of considerable importance. Part of the blame lies with the over-enthusiasm of certain types of salesmen who mistakenly feel that forcing a lot of samples on a prospective customer is the surest way to get his confidence and his business.

The rest of the blame lies with the equally mistaken purchaser who keeps the salesman dangling, accepting anything and everything so long as it doesn't cost anything. "Send us a sample," seems to be the easiest way to end the interview. It is a wasteful inefficient way of doing business which is seldom productive.

Much of it could be eliminated through the use of a little candor

...s their supply me. I must ...tled to entire ...gallons ...of red ...te, and ...e were ...quarts, ...t even they ...int in- ...If this ...as not

...lesmen ...mples, ...se and ...on in ...nat al- ...e case, ...l, nor ...gh re- to a ...ample ...eck. ...try to ...o the prob- ...tance. ...h the types ...y feel ...es on the ...dence

with ...haser ...gling, ...thing ...ching. to be inter- ...icient ...ch is

...nated ...andor

and common sense between salesman and prospect. The former should never offer a sample until he has first become familiar not only with the customer's product but also with his entire finishing set-up. He should also be reasonably certain that he can furnish something which offers a definite advantage. Then, if a sample is really necessary, he should follow it up to see that it gets a fair and thorough trial.

The prospect, on his part, should realize that paint samples are a mighty costly business and he should be reluctant to accept them unnecessarily. On the other hand, once a sample has been accepted, the obligation is his to see that it gets every consideration.

It was with this in mind, that several years ago our company inaugurated a policy of keeping samples at a minimum, together with a system of handling them which would develop an accurate evaluation of those tried. Every salesman of finishing or cleaning materials is entitled to a frank and friendly discussion of our product, equipment and methods, together with anything which he may think would improve them.

It is always a poor policy to change suppliers for petty reasons, or to split business up until it is of little value to anyone. An intelligent salesman will understand and appreciate that you refuse to waste his time or raise his hopes unless he can produce a definite improvement.

Eye Wash Fountain

A new eye washing fountain for the immediate flushing of eyes that have been exposed to irritating vapors, liquids, dusts, chemicals, or smoke has been invented, designed, and developed by Benson & Associates, Inc., 332 S. Michigan Ave., Chicago 4, Ill.

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QUALITY

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SEALERS
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THE GILBERT SPRUANCE CO.

RICHMOND & TIOGA STS.

PHILADELPHIA, PA.

SPRUANCE QUALITY

More Experienced Foremen Needed

★ The finishing industry is seriously handicapped because of an acute shortage of supervisors and foremen. There are a number of reasons for the present shortage of skilled foremen finishers; a few are as follows:

1) During the war most of the young men were called into service, so companies had no opportunity to train men for foremen. In most cases they had to work women and older men in the finishing department.

2) The finishing industry expanded tremendously during the war and since the war. This expansion has called for many more foremen.

3) In many cases foremen are not well enough paid in comparison to the present high rate of production workers. Accordingly, some men are reluctant to accept the responsibility of a foremanship, when they can make as much and in some cases more by working as an ordinary laborer, which doesn't begin to carry the responsibility of a foreman.

This lack of properly trained supervision is costing the finishing industry an enormous amount of money every year. It costs a lot in labor waste. The untrained supervisor doesn't know how to handle labor, which is the most important thing in any department or industry. In many cases the untrained foreman may be working more men than is necessary, due to his lack of knowledge as to how to plan his work and how to place his men so they will deliver the maximum amount of work.

Untrained foremen also cost the finishing industry a lot because of poor workmanship and inferior finishing; the untrained supervisor is not able to distinguish between good work and poor work. Neither is he able to instruct those under him on how to produce real quality work.

Poor work in the finishing department causes much refinishing, which is also very expensive. The properly trained and experienced foreman finisher will be able to direct and train his men so that there will be an absolute minimum of poor workmanship and rejects.

★ Guest Editorial . . . Many readers can write an excellent editorial — two or three paragraphs that present a timely suggestion or valuable idea which will stimulate real thought on a live subject. The Editor welcomes guest editorials and pays for those that are published.

BLEACHES
Decolorant-Color Dissolvent
Aspen Concentrate
Write for information and quotations.
H. BEHLEN & BRO., Inc., 10 Christopher St., New York 14, N. Y.

Lack of properly trained foremen finishers is also costing the finishing industry thousands of dollars annually in the wastage of finishing materials. Workmen who do spraying must be taught how to use the proper amount of air and fluid pressure, and the right fluid needles and tips for the work at hand. The improper use of any of these will not only cause poor work but will result in a lot of the materials being wasted as overspray.

What can the manufacturer do about this serious shortage of foreman finishers? Well, the first and most important thing he can do is to begin now to train foremen. Every foreman finisher should be allowed to select an outstanding young man (from his department, if possible) and begin to train him. As time goes along the trainee can be made assistant to the foreman. He should be expertly and carefully trained in the management of labor and the application of materials. He should also be taught how to avoid wastage of finishing materials and other supplies.

In short, the apprentice finisher should have the foreman finisher's most expert training. It is only by training more men that the problem of alleviating the present acute shortage of supervisors and foremen can be solved.—H. W. CHESTER.

Painting Promotes Shop Safety

★ Each year industrial safety statistics remind us of the heavy toll of factory accidents—accidents which lower production and raise costs—accidents many of which could be minimized or

SOLVENT CLEANING

whether your operation is

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MANUAL
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Neutralizes harmful paint, enamel and lacquer fumes. Effortless breathing. Light in weight. Durable, plated metal body adjustable to fit any facial contours. Rubber face cushion, knitted covers, head straps fit comfortably. Order several and be convinced. Prices on request.

Pulmosan Safety Equip. Corp.
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BOOTHCOTE
cleans spray booths quickly, economically, safely!

Spray Boothcote on clean booth. Surplus paint can then be peeled off in sheets by any operator.

- Saves time and labor
- Time-tested; used for 8 years
- Mixed – ready to use
- Can be brushed or sprayed
- Non-inflammable; safe to store
- Does not flake off

Money back trial offer: 15 gals. $16.50 f.o.b. Buffalo or write for Circular.

HYGRADE FOOD PRODUCTS CORP.
Boothcote Div., 18 Stetson St., Buffalo 6, N.Y.

avoided entirely by a vigorous safety clean-up paint-up program. Such a program could be initiated by highlighting with paint such accident-attracting objects as low hanging beams, projecting ends, skids, hose and moving parts of machinery. Removing the camouflage from these and similar obstacles will effectively reduce bumps, spills and bruises.

Clean painted areas will restrain those who habitually stand at a distance from waste receptacles, and despite their usually poor aim, hurl refuse at them. Painting the area surrounding the receptacles in light colors will make fallen refuse so prominent that offenders will be shamed into disposing of their refuse properly.

Another high-casualty hazard, the dark stairway, can be largely overcome by the simple expedient of painting white the front edge of each tread and the entire last step. Painting dangerous areas and intersections of the shop will also prevent needless mishaps:

An obvious function of the use of paint in promoting shop safety is to indicate the location of fire extinguishers, emergency exits, open shafts, etc. For these purposes bright yellow is now preferred instead of red, since yellow is more visible to color-blind people than red.

Painting shop surroundings further maintains production by combating fatigue. The muscles of the eye are affected by strong colors, especially over long periods of time. A sprayer, working with bright red for several hours, will tend to become far-sighted. Another sprayer working with strong blue will tend to become near-sighted. Obviously, the eyes of both men will tire rapidly and, in consequence, the quality and

speed of their work will fall off. Walls and ceilings painted in soft, non-glaring hues provide a welcome and needed eye relief. Light shades of green are advocated as being most restful to the eye.

Still another aid to production is the role of paint as an identifier. By employing a code of colored paints to mark both raw materials and finished products, many time-wasting, costly errors can be avoided. With this code in service the shop foreman can spot from a distance a worker about to cut an enamel with the wrong thinner, or another worker about to spend 20 fruitless minutes in the stock-pile getting at the wrong drum.

Savings effected by painting are perhaps nowhere so manifest as in plant illumination. Dull, dark interiors absorb much of the light in the shop, reflect little in return. For example, dark gray walls will reflect only 8% of the light shining on them; silver gray walls give back about 44% of the light. By contrast, the white wall light reflection is over 80%. In more practical terms, dark walls and ceilings can reduce lighting efficiency by 25%, increasing lighting costs proportionately.

The right kind and color of paint, strategically applied, will help make a brighter safer shop, plus more efficient, more productive workers.—S. W. BRAVERMAN.

Get Real Help and Ideas from Salesmen

★ Manufacturers of old established products may have followed a routine finishing process for so long that there is no one in their organization familiar with other methods. Today, many firms are planning new products which may

SAFEGUARD YOUR SPRAY BOOTHS

Layers of inflammable paint come off more quickly if you have applied Wyandotte Spray Booth Coating first. Only a thin coating makes cleaning easier, speedier, more economical.

And you can reduce your floor-cleaning costs with Wyandotte F-100*. Even heavy soil stands no chance against this remarkable compound.

For more information about these Wyandotte Products, write the Wyandotte Chemicals Corporation, Wyandotte, Michigan.

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We will purchase and/or have reclaimed paint overspray from water curtained spray booths. Any type paint, enamel or lacquer is acceptable.

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Restores Paints, Lacquers, Enamel Products and Pigment Primers, to original consistency in 3 to 10 minutes without opening the can. Available for Round or Square 5-gallon cans. Explosion proof electrical equipment if desired. Also other units from ¼-pint to 50-gallon drum capacity available. Originators of Paint Rejuvenating Equipment—ten years—thousands of satisfied users.

Miracle Paint Rejuvenator Co.
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require an entirely different finish ing setup. Experimentation ma prove too costly or there may b insufficient time. However ther is probably a simple solution t the problem.

Concerns that manufactur finishing materials or their sales men, often specialize more or les on lines with which they become most familiar or most successful Among those salesmen who hav called on the company in the past there were undoubtedly one or tw who could easily put the perplexed finishing foreman on the right path—this provided they are granted sufficient time and courtesy for a real exchange of ideas; and provided they are allowed access to a responsible interviewer. Let's hope they have not been given the brush-off so often that they may now be resentful and uncooperative.

The supervisor or finishing room foreman who really wants to know his business can learn more from salesmen than from all the books ever printed or from a lifetime of experience. They can and often will arrange visits to other factories where equipment, materials or methods of production can be studied in actual use. This alone can eliminate much costly blunder ing; for instance, investing in unsuitable equipment may be avoided.

It is part of the well informed salesman's business to understand much of the chemical and physical factors which are involved in the finishing business. He knows the latest developments in materials and research, and he is usually happy to discuss them with a serious listener; and a salesman can usually present such information in more understanding phrasing than you find in a book.

Most companies that buy and use

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finishing materials maintain a more or less elaborate purchasing department and, generally speaking, there is much advantage to routing all purchasers through one individual or department. However, the finishing department should be at least a partial exception. Any salesman of materials used in this department should be permitted to contact the man who is actually in charge of this work. If at all feasible, show him through the plant, let him see some of the finished work, and when he leaves, invite him to drop in again, even though he has nothing you can use. By so doing you have not only laid the groundwork for an exchange of ideas but have gained a valuable booster.—GEORGE CONRAD.

Relations Improved Through Plant Bulletin

★ There is no organization, large or small, that does not have virtues and praiseworthy qualities which, through neglect, may not be appreciated by its employees. Most supervisors do this as a routine part of their work. An employee comes to them to ask where he stands, what his future possibilities are, should he accept an offer by another company, etc. At such times the supervisor presents information which puts a different aspect on the situation. He may explain the retirement plan the company has or the insurance being carried on each employee for his benefit, or a dozen other merits of which the employee had no previous knowledge.

The weakness of this system is that the supervisor has sold only one employee on the qualities of the company—and then only after a grievance has arisen. Still more important is the fact that often the supervisor does not have or may not use this information to help an employee.

Several years ago we instituted a plant bulletin to help sell the company to the employees. Since we had no more than 200 hundred people at that time, it was felt

THERE'S USUALLY something that slows our production these days. For example, a shortage of some vital basic chemicals we require can prevent us from producing key Hercules products needed in the manufacture of varnishes and lacquers.

In spite of these hindrances, we're producing more synthetic resins and nitrocellulose today than at any time in our history—*yet we cannot meet ever-increasing demands of industry.*

We all know this condition cannot last forever. Until the return to normal, therefore, we are allocating available materials as fairly as possible.

HERCULES

HERCULES POWDER COMPANY
928 Market Street, Wilmington 99, Del.

L7-2

that a printed paper would not be suitable, as it would require a trained staff and considerable experience.

"The Weekly Scotchman" was the final result. It consisted of a large board with printed lettering across the top, "The Weekly Scotchman." Below was printed, "Published weekly by the employees of the P. L. & Mfg. Co."

One of the employees in the factory office was selected to gather the news and post it every week. Articles were written and edited in newspaper style, with headlines that attracted attention. Every opportunity was taken to use this bulletin board for the improvement of personnel relations.

Stories of unusual production by different groups or workmen were written up with a complete personal history of the individuals to give the article a human interest touch. The workman's name in print gave him a feeling of importance, satisfying his craving for personal worth.

The bulletin has been a great help in bringing before workmen company policies and qualities which soon become lost in pamphlets or frequent announcements. Recently, a retirement plan was initiated. The announcement was made and literature passed out in the usual formal way, In order to get the full significance acrosss to the workmen, a series of articles were published dealing with the retirement plan. It was easy and natural for the company to point out with pride that no other industry in this section had initiated such a program. Through this method, pride and loyalty in the employee for the company is nurtured.

Every concern has a personality, and the public rates it accordingly. That personality is made up largely of the attitudes of the workers in that plant toward the concern itself. No man or woman is so lacking in self respect that he does not want to be proud of the company for which he works. He should be given information which makes such pride not only possible but irresistible.—H. H. C.

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